Chapter V
Treatment of Diseases

Section A
INTRODUCTION

IF THIS TEXTBOOK IS STUDIED CAREFULLY, a medical attendant will be able to provide essential treatment promptly. Those who become familiar with the entire text will find it useful as a ready reference for specific problems. Also, it carries reminders on when to consult with a physician by radio.

It is important for the ship's Master and other concerned personnel to remember that many symptoms are common to several diseases. For example, a large number of communicable diseases start with the same group of symptoms: general malaise, headache, constipation, sore throat, running nose, inflamed eyes, and slight fever. The specific symptoms of the disease, on which a definitive diagnosis can be made, may not develop for hours or days. The treatment is much the same during the early stages of these diseases. This is referred to as "symptomatic treatment" and consists of relieving the unpleasant symptoms or complaints of the patient. Common examples of symptomatic treatment are aspirin for headache and rest for malaise.

The material on the following pages should help the ship's Master and other responsible personnel to treat most medical emergencies at sea. The medicines considered to have a priority in the treatment of these emergencies are described in Chapter VI. If possible, medical advice by radio should be obtained before administering any medication that requires a doctor's order or prescription. Such a medication will include a statement on the label affixed to the container that a prescription (physician's order) is required.

When a seaman is in good physical condition, an illness that he is likely to get at sea should improve under simple treatment. Therefore, to assure maximum body resistance to disease, a seaman should have an annual physical examination and have all immunizations current.

The index at the end of this book should be referred to freely. Symptoms and diseases are cross-indexed to provide a broader and safer check beyond the alphabetical list of references in this chapter.

This book is only an elementary guide. However, it should enable the reader to acquire a certain skill in the following essentials of diagnosis and treatment:

- Ability to make a primary diagnosis and to know the application of symptomatic treatment.
- Ability to further refine a diagnosis by observation of the patient and from medical advice by radio.
- Ability to recognize a communicable disease and to take steps to prevent its spread.
- Ability to recognize serious conditions that require additional medical advice by radio.

- Acute Myocardial Infarction
- Angina Pectoris
- Congestive Heart Failure
- Cyanosis
- Edema
- Heart Rate Irregularities
- High Blood Pressure
- Lymph Gland Enlargement
- Phlebitis
- Pulmonary Embolism
- Varicose Ulcers
- Varicose Veins

Chapter V

Treatment of Diseases

Section B

CARDIOVASCULAR DISEASES

ACUTE MYOCARDIAL INFARCTION
(Heart Attack, Coronary Occlusion)

THE PATIENT FREQUENTLY is a heavy cigarette smoker over 40 years of age. A history of hypertension, diabetes, angina pectoris, or a previous myocardial infarction will help confirm the diagnosis of a heart attack. The pain usually is centered behind the breastbone and is not intermittent or pulsating. Generally it is described as a pressure or squeezing sensation. The pain builds in intensity over the first minutes and lasts from a half hour to several hours. Pain may travel to the left shoulder or left arm, the lower jaw, or upper abdomen. Less often, it radiates to the right shoulder or right arm. Sweating, nausea, and a feeling of impending death often are associated features. The pain is not relieved by changes in body position nor affected appreciably by breathing. If the patient goes into shock or acute heart failure, he may not survive.

Some patients with acute myocardial infarction do *not* have chest pain. They may have fainting, shortness of breath, or palpitations. Because belching and vomiting are common with heart attacks, one should not be mislead and attribute the chest pain to "indigestion."

Treatment

The conscious patient suspected of having a myocardial infarction should be put to bed in a half-sitting position.

For severe pain, morphine sulfate 10 mg by intramuscular injection should be given. If additional doses of morphine sulfate are required, medical advice by radio should be obtained before continuing the medication. If the patient's skin or mucous membranes show a bluish tinge in color (cyanosis), reduced oxygen in the blood or lungs is indicated. If oxygen is available, it should be administered. (See p. IV–17.)

Medical advice by radio always should be obtained. Evacuation should be arranged as soon as possible.

ANGINA PECTORIS

Angina pectoris occurs when the blood flow to the heart is temporarily inadequate to meet its oxygen needs. The major importance of angina pectoris is that it indicates a patient is prone to myocardial infarction.

The pain of angina pectoris resembles that of myocardial infarction. Usually it is a squeezing, steady pain, centered behind the breastbone. Pain may radiate to the same body areas

as in myocardial infarction. However, the pain is different in that it is brought on by physical exertion, exposure to cold, emotional stress, or by the ingestion of food. It seldom lasts longer than ten minutes and almost always responds to nitroglycerin. Acute myocardial infarction is as likely to occur at rest as during activity. This pain lasts much longer than ten minutes and does not respond to nitroglycerin.

Treatment

Nitroglycerin dissolved under the tongue is the most commonly used medication for angina pectoris. After a definitive diagnosis of angina has been made, nitroglycerin can be used freely, especially before activities known to have provoked past attacks. Nitroglycerin tablets should not be swallowed because the acid juices of the stomach destroy the therapeutic effect. Patients should make note of situations that have brought on attacks in the past and try to avoid these.

The patient who is suffering his first attack of angina pectoris should be treated the same as the patient with a myocardial infarction. The same treatment should be given to patients with a long history of angina pectoris whose attacks are more frequent or more easily triggered. Frequent easily provoked attacks often precede an acute myocardial infarction. Medical advice by radio always should be obtained. Evacuation should be arranged as soon as possible.

CONGESTIVE HEART FAILURE

Congestive heart failure occurs when the heart is unable to perform adequately its usual functions. This results in a lessened supply of blood to the tissues and congestion of the lungs. In acute failure, the heart muscle fails quickly and the lungs become congested rapidly. In chronic failure, the heart muscle fails gradually and the body has time to compensate. However, when compensation is no longer adequate, fluid will begin to accumulate in the lower parts of the body. Swelling most often appears in the legs and feet but it may occur in other parts of the body. Although, there are many underlying causes of congestive heart failure, the most common are chronic coronary, hypertensive, and arteriosclerotic heart disease.

The signs and symptoms of the disease depend on whether the onset of failure was sudden or gradual. Generally, a gradual loss of energy and a shortness of breath (dyspnea) occur upon exertion. In more acute cases, the patient may cough up frothy, bloodstained, or pink sputum. Later, shortness of breath may appear during periods of lesser activity, and the patient may need to sit up in bed, or sleep on several pillows at night to breathe more easily. Ankle swelling may occur due to the accumulation of fluid in the tissues and as failure progresses, the swelling may involve the hands, legs, and abdomen. The liver may become enlarged due to congestion which results in discomfort and tenderness. In more advanced cases, there may be a blueness of the skin (cyanosis), especially at the lips, ears, and fingernails.

Treatment

For *acute* failure, see acute myocardial infarction on p. V–2. In severe cases of chronic failure, the patient should be placed on absolute bed rest in a sitting or semisitting position. Heavy meals should be avoided, and the food kept as salt-free as possible. Smoking should be prohibited. Medical advice by radio must be obtained. *A patient with chronic heart failure should receive medications only upon medical advice.*

CYANOSIS (Blueness of the Skin)

This bluish discoloration is a result of the body's lack of oxygen and shows up best in the lips, ears, inside of the mouth, and under the nails. Common causes are injury to the chest that impairs breathing, inhaling air with decreased oxygen (as in smoke inhalation), obstruction of breathing channels by foreign objects or by infection (pneumonia), drowning or other causes of suffocation, heart disease, stroke, heavy sedation by alcohol or drugs, and severe infection.

Sometimes cyanosis occurs when the blood supply is decreased to a part of the body. For instance, cold weather may cause cyanosis of the hands and/or feet in susceptible people. When this is the case, the parts involved (usually the fingers and toes) will be blue, while the lips and inside of the mouth will be pink.

Treatment

The underlying disease should be treated. If the cyanosis is due to a lack of breathing, mouth-to-mouth breathing should be started immediately. Oxygen should be administered, if it does not interfere with other forms of treatment. (See Cardiopulmonary Resuscitation, p. IV–1+.)

EDEMA

Edema means the accumulation of excess body fluid. This fluid usually accumulates in the legs, abdominal cavity, or chest. Edema may be secondary to a variety of causes, the most common being congestive heart failure. Swelling of the patient's ankles and occasionally an increase in the size of his abdomen may be noted. There may be shortness of breath either after exertion or when lying down. A history of high blood pressure, angina pectoris, heart murmur, or a variety of other symptoms related to heart disease may be present. Other common causes of edema include chronic liver disease, kidney disease, varicose veins, or previous vein inflammations (phlebitis). Also, frostbite may cause localized leg swelling.

Treatment

The amount of salt in the patient's diet should be limited. When the edema is caused by a leg problem, swelling will diminish if the legs are elevated. However, if heart failure is suspected, the legs should not be raised as this may aggravate shortness of breath. *Medical advice by radio should be obtained before administering any medications.* (See Angina Pectoris, p. V–2.)

HEART RATE IRREGULARITIES
(Skipped Beats and Palpitation)

At times some individuals are conscious of a racing or fluttering (palpitating) heartbeat, or a skipped beat. These irregularities are likely to occur when a person has consumed too much food, alcohol, or coffee; smoked to excess; or is emotionally excited or depressed. These spells of rapid pulse and skipped beats may cause considerable apprehension. Unless they are associated with symptoms of heart disease, there usually is no cause for alarm. However, the patient should be advised to consult a physician.

Treatment

If there are frequent attacks of palpitation or skipped beats, the amount of food eaten at each meal should be reduced to remove the possibility that the stomach has been overloaded. Small quantities of food may be taken between meals if the patient feels hungry. Coffee, tea, alcoholic beverages, and tobacco should be reduced or discontinued to see if they have any relationship to the condition. The patient should have adequate sleep and additional rest. Phenobarbital 30 mg by mouth should be given at bedtime if the patient is unable to sleep.

The patient may have a serious heart disease if the pulse is very irregular, or the heart rate is very slow (less than 50 beats per minute), or very rapid (150 or more beats per minute). This is especially true if these occur with fainting attacks or other symptoms indicating heart disease or heart failure. One should look carefully for other signs of a failing heart. If found, the patient should be treated as indicated under Congestive Heart Failure (p. V–3). If the irregularities persist, medical advice by radio should be obtained.

HIGH BLOOD PRESSURE
(Hypertension)

When the heart beats, blood is forced into the arteries and pressure is exerted against their walls. The amount of pressure is determined by the strength of the heartbeat and by the resistance offered by the arteries.

The pressure exerted by the blood on the artery wall can be estimated by a measuring apparatus, the sphygmomanometer. (See procedure for taking blood pressure, p. VII–4.)

Anything that increases arterial resistance increases blood pressure. A gradual rise in pressure is associated with advancing age. The rise usually is due to increasing rigidity of the arteries and a thickening of the arterial wall. The heart has to pump harder to force the same amount of blood through the hardened arteries.

In general, high blood pressure may be suspected when the diastolic pressure is 90 mm

of mercury or above. High blood pressure usually takes years to develop and often is associated with or is a complication of many other diseases.

Hypertension symptoms may include: pain in the back of the head and neck, usually starting early in the morning; flushing of the face; and dimness of vision. It may be associated with heart disease or kidney disease. If high blood pressure is not treated adequately, a stroke may occur due to rupture of blood vessels in the brain.

Treatment

The symptoms should be treated and unnecessary physical and mental strain should be avoided. The patient should eat lightly, restrict salt intake, and maintain bowel regularity. If the patient is restless, phenobarbital 30 mg by mouth should be given two or three times a day as needed.

Medical advice by radio should be obtained when the patient exhibits symptoms of high blood pressure, or has a diastolic pressure of 110 or higher.

LYMPH GLAND ENLARGEMENT

The lymph glands are small, kernel-like nodes found in such places as the neck, armpits, or groins (see p. I–19). The most important ones and the areas they drain are listed below. When a lymph gland becomes swollen and painful, infection must be looked for in the area it drains.

Glands in the groins drain the lymph from the penis, foot, and leg. An infected wound of one leg causes enlargement of the glands on the same side. However, venereal disease, a common cause of enlargement, may cause enlargement of the glands in both groins.

The lymph glands in an armpit drain the lymph from the arm and side of the chest. Those in the front and sides of the neck drain the lymph from the tonsils, adenoids, teeth and gum areas; and those in the back of the neck drain the scalp and neck. Enlargement of all lymph glands in the neck may indicate secondary syphilis or a serious blood disease.

Treatment

The illness causing the infection should be treated. For pain, aspirin 600 mg should be given by mouth every three to four hours. If the patient does not tolerate aspirin, acetaminophen 600 mg should be tried. If the swelling persists, the patient should be referred to a physician.

PHLEBITIS
(Thrombophlebitis)

Phlebitis, sometimes referred to as thrombophlebitis, is an inflammation of the wall of a vein due to the presence of blood coagulation or a clot. It usually occurs as a result of the slowing down of the blood flow in varicose veins. However, phlebitis may occur as a complication of surgery, pregnancy, trauma, and incorrect posture, such as prolonged sitting or crossed legs.

There may be pain and tenderness along the vein, usually in the lower limb, and a hard core may be felt. Frequently, the skin may be red over the hard core area. If a large vein is involved, swelling (edema) may develop in the limb below the level of the clot. Also, a rise in body temperature of two to three degrees may develop. In some acute conditions the patient may complain of a feeling of heaviness or an aching pain in the limb. Patients who have infectious diseases such as typhoid fever or typhus, or have recovered from such diseases, are much more susceptible to phlebitis.

Treatment

The patient should be placed on bed rest (usually for five to ten days). The foot of the bed should be elevated from 6 to 8 inches so that the extremity is on a higher level than the heart. To ease the discomfort, warm moist compresses or a heating pad should be applied to the involved area. The calf of the extremity *never* should be massaged.

If pain or fever is present, aspirin 600 mg may be administered by mouth every four hours. If the patient does not tolerate aspirin, acetaminophen 600 mg should be tried.

Medical advice by radio should be obtained.

PULMONARY EMBOLISM

Pulmonary embolism is caused by a blockage in the arteries of the lung by a fragment of blood clot usually originating in the leg

veins. The pain may resemble that of pleurisy (made worse by breathing) or that of myocardial infarction (a constant squeezing pain). The patient may be breathless, quite anxious, and cough up blood. The calves of the legs may be swollen, warm, and tender.

Treatment

If this potentially fatal disease is suspected, the patient should be placed in bed and medical advice by radio should be obtained. Oxygen may be administered for a pulmonary embolism while awaiting advice by radio.

VARICOSE ULCERS

The formation of ulcers or sores is a common complication of varicose veins. They are formed as a result of some trauma which would heal without a problem in a limb with normal circulation. The ulcer may become infected and itching is a common complaint which compounds the problem. The area around the sore is discolored and the ulcer surrounded with a raised dull red border. The center and bottom of the sore is covered with a yellow discharge and the limb is usually swollen.

Treatment

The circulation of the blood in the area should be improved and the ulcer kept clean. In severe cases, bed rest is important and the limb should be elevated on a pillow. The ulcer should be cleansed twice daily with soap and water, and a sterile dressing applied. When the floor of the sore becomes a healthy red color and the pus has disappeared, the healing process has begun. At this point, the sore should be kept clean with sterile dressings. The patient should be made ambulatory at this time but should avoid standing in one position for any extended period of time. The dressings should be kept fresh and clean.

VARICOSE VEINS

Varicose veins are abnormally dilated veins occurring most often in the lower extremities and the lower trunk. Often they are found in people whose work requires prolonged standing. This places a strain on the valves in veins because muscle action is not helping to return the blood. Chronic systemic disease, as heart disease and cirrhosis of the liver, may interfere with effective return of blood to the heart and contribute to varicosities.

Varicosities of superficial veins appear as darkened, tortuous, raised blood vessels that become more prominent when the patient stands. The patient may have pain, fatigue, a feeling of heaviness in the legs, and muscular cramps. The discomfort is increased greatly by prolonged standing and is worse during hot weather or when the patient is in high altitudes.

Treatment

The patient with varicose veins should be advised to elevate his feet for a few minutes at regular two-hour to three-hour intervals throughout the day to improve circulation in the legs. An elastic stocking or elastic bandage should be worn. If an elastic bandage is used, it should be applied before the patient gets out of bed while the leg is elevated. Rest in bed is essential if there is increased swelling of the leg or foot. The patient should be instructed to seek medical advice when convenient.

Chapter V

Treatment of Diseases

Section C

EAR AND EYE DISEASES

EAR

Earache

AN EARACHE MAY BE CAUSED by infection of the middle ear; an inflammation, abscess, or a boil of the external auditory canal; inflammation of the eustachian tube; dental conditions; mumps; and inflammation of the mastoid bone or other nearby structures.

The ears frequently ache, feel sore, or have a feeling of fullness during a head cold or some other disease in which the respiratory passages are affected. Acute infection of the middle ear causes severe earache and usually results in the formation of an abscess.

Neuralgia is one of the causes of earache and is characterized by a sudden stabbing pain. The patient feels as though someone had stabbed a knife into the eardrum or the canal. Usually, the pain stops suddenly. This fairly rare disease is mentioned to indicate that not all sudden, sharp, stabbing ear pains are due to the common causes listed previously.

Treatment

The upper part of the ear should be pulled upward and backward to inspect the ear canal. Any swelling, redness, or localized boil should be treated by rest in bed and hot wet compresses applied over the ear. For pain, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not tolerated by the patient, acetaminophen may be tried at the same dosage and frequency.

Symptoms similar to earache may result from dental conditions. The mouth and teeth should be inspected for dental defects, and if necessary treated as described under Dental Emergencies (see p. V–18).

If the throat is inflamed, it should be treated as described under Sore Throat (see p. V–96). The sides of the face should be felt beneath the ears for tenderness or swelling that would be suggestive of mumps (see p. V–48).

Middle Ear Infection

Bacteria from the nose and throat reach the middle ear through the eustachian tube. Middle ear infections usually develop as a complication of a common cold, tonsillitis, or an acute infection as measles and scarlet fever.

Forcible blowing of the nose may drive infected mucus through the eustachian tube into the middle ear. A patient with nasal con-

gestion (stuffy nose) should be instructed to blow his nose gently, preferably with both nostrils open. In acute inflammation of the nose and throat, the measures for relieving nasal stuffiness and sore throat are outlined under the symptomatic treatment of Common Cold (see p. V–91). These measures will help prevent infection of the middle ear.

Acute infection of the middle ear causes severe earache. Usually it is accompanied by fever and pus often forms behind the eardrum. If the eardrum is under great pressure, there is a throbbing pain. Spontaneous rupture of the eardrum, with the release of pus, usually gives dramatic relief from pain. If all goes well, the infection clears up in about a week and the hole in the eardrum heals.

The chief danger from a middle ear abscess is the spread of infection to the mastoid bone behind the ear. The signs of mastoid involvement are pain, tenderness on pressure behind the ear, possible swelling behind the ear, continued earache even after rupture of the drum, and usually an increase in fever.

Treatment

For an infection of the middle ear, an initial dose of penicillin V potassium 500 mg should be given by mouth followed by 250 mg every six hours. If the patient is suspected of being allergic to penicillin, oral erythromycin should be used in the same dosage and frequency. The patient should be kept on the antibiotic for at least four days after the temperature becomes normal.

For pain, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not tolerated by the patient, acetaminophen may be tried at the same dosage and frequency.

Phenylephrine hydrochloride 0.25% nasal drops or nasal spray should be used in the nostrils every eight hours to assist in opening the eustachian tube.

Chronic low grade inflammation of the middle ear, without the formation of pus, may be a complication of repeated or persistent colds. The usual symptoms are a nagging pain, a feeling of dullness or fullness, ringing in the ear, and impaired hearing. Because chronic inflammation of the middle ear is an important cause of loss of hearing, the patient should be urged to consult a physician when the ship reaches port. Three drops of hydrocortisone-neomycin-polymyxin B eardrops should be used twice a day in the affected ear, until the patient sees a physician.

Earwax, Impacted *(Impacted Cerumen)*

There is a normal secretion of brownish wax (cerumen) in the canal of the external ear. Excessive amounts of this wax is an important cause of deafness. Some persons produce large quantities of earwax. Pain in the ear may occur suddenly because of accumulated hard wax.

Treatment

Hard earwax may be softened by placing a few drops of olive oil or cooking oil into the ear and leaving it in for 24 hours. Then it should be removed by gently syringing the ear with a hypertonic sodium chloride (table salt) solution (one tablespoonful to a glass of lukewarm water). Earwax never should be removed by forcible instrumentation. After irrigation, the external ear canal should be dried thoroughly with cotton-tipped applicators.

The patient should be advised to see a doctor at the next port of call if the problem persists.

EYE

This section on eye problems is not intended to cover all possible problems which might occur at sea. Generally anyone who develops sudden loss of vision, pain in the eye, red eye, or a discharge from the eye deserves medical attention as soon as possible.

Chronic Eye Diseases

Cataracts

A cataract is a clouding of the lens of the eye. This usually occurs as an aging process in people over age 60, but cataracts may occur at a much younger age or even at birth. Cataracts may develop without an obvious cause but some result from severe injuries. In advanced cases, cataracts may be cloudy enough to make the pupil appear white instead of black. Persons with possible cataracts should have a complete eye examination. In almost all cases the cure for cataracts is surgical removal.

Glaucoma

Glaucoma is a category of eye diseases in which the fluid substance in the eyeball is under higher pressure than usual. The glaucomas are probably the most common cause of blindness in the United States. *Primary glaucomas* develop without known cause and include two main types; *chronic simple glaucoma* and *acute congestive glaucoma. Secondary glaucomas* may develop as a result of damage due to previous injuries or inflammations of the eye.

Chronic Simple Glaucoma

Chronic simple glaucoma is the most common form of primary glaucoma. It is painless and may go undetected by the patient until severe loss of vision has occurred. It is sometimes called the "sneak thief of vision." This form of glaucoma is detected only by careful professional eye examination. If detected early, vision can be saved. Thus adults should be encouraged to have eye examinations which include glaucoma screening every two years, even in the absence of symptoms.

Treatment

Because signs and symptoms of chronic simple glaucoma generally are not present, it will not be detected aboard ship. However, some crew members already may be under a physician's treatment for the condition. Pilocarpine hydrochloride eye drops in various concentrations are commonly used to treat this form of glaucoma, often in combination with other medications. Because medical treatment of chronic simple glaucoma is of lifelong duration, the patient will be familiar with the specific diagnosis and medication program. Two percent pilocarpine hydrochloride eye drops should be carried aboard ship for temporary use by any of the crew who may run out of the medication. If a crew member is not certain of his diagnosis, or if he is under glaucoma treatment with a different medication, obtain medical advice by radio before substituting pilocarpine.

Acute Congestive Glaucoma

Acute congestive glaucoma is the less common form of primary glaucoma, but it is an extremly serious condition requiring immediate treatment by an eye specialist. The eye pressure increases suddenly accompained by extreme pain, redness of the eye, and slight cloudiness of the cornea. The pupil does not react to light. In addition to severe pain, which may be accompanied by nausea and vomiting, the patient experiences somewhat decreased vision and perceives colored halos around bright lights.

Treatment

Emergency surgery often is required to lower the pressure in the eye to prevent irreversible loss of vision. Management of acute congestive glaucoma always should be referred to a physician, so medical advice by radio should be obtained in suspected cases. If professional treatment cannot be provided immediately to the patient, the physician giving advice by radio may direct the temporary use of pilocarpine hydrochloride eye drops, and oral administration of acetazolamide tablets (commonly in dosage of 250 mg every 4 to 6 hours).

For pain, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency. If pain is very severe, a 10 mg dose of morphine sulfate may be given intramuscularly upon medical advice by radio.

Secondary Glaucoma

Secondary glaucoma may develop as a complication of other eye conditions, such as keratitis, corneal ulcer, iritis, and previous surgery or injury.

Treatment

The most important treatment for secondary glaucoma which can be provided aboard ship is prevention. Serious eye disorders should have adequate professional treatment. Crew members should be directed to have professional follow-up of persistant eye problems even if reported as mild. Specific management of secondary glaucoma varies with the cause, often requires surgery, and cannot be generalized. Medical advice by radio should be obtained in suspected cases.

Contact Lens Problems

All contact lens wearers should bring a pair of spectacles aboard ship. If there is any unusual irritation of the eyes, contact lenses

should be removed and spectacles worn until the patient is examined by an eye physician. Antibiotic eye drops may be given for irritation that lasts more than a few hours after removing the lenses. Before any medication is used, the patient should be questioned about possible allergies to its ingredients. Any injury or infection to the eye is another indication to discontinue wearing a contact lens until seen by an eye physician. With chemical injuries, the immediate removal of the lenses is indicated. Although the contact lens may tend to protect the cornea from some foreign materials, liquids will flow rapidly under the lens to create a more hazardous situation.

Removal of Contact Lens—The wearer may need assistance if he has difficulty removing his contact lenses, or if a lens becomes dislodged from the cornea under the lid and cannot be repositioned. If the lens is under an eyelid, the wearer should look in the opposite direction, lift the lid and try to slide the lens onto the cornea.

A lens cannot slip behind the eyeball. If it cannot be located, no harm will occur if it remains under the eyelid until the patient can be examined by an eye doctor. However, to prevent possible infection, antibiotic eye drops as polymyxin B-neomycin-gramicidin should be instilled four times daily.

Infectious Eye Diseases

The most common infectious eye diseases that might be encountered aboard ship include blepharitis (infection of the eyelid margins), conjunctivitis (infection of the conjunctiva), sties (infection of the glands in the lid margins), and more rarely, keratitis (infection of the cornea). Also discussed are orbital cellulitis and trachoma.

Before any medication is used in the eye or elsewhere, the patient should be questioned about possible allergies to ingredients in the medication.

Blepharitis

Blepharitis is an inflammation of the margins of the eyelids with redness and thickening, plus crusting that resembles dandruff. There is itching, burning, loss of eyelashes, tearing, and sensitivity to light. There may be shallow marginal ulcers.

Nonulcerative blepharitis—This scaly type may be caused by allergies or associated with seborrhea (dandruff) of the scalp or face, which should be treated. The scales on the margins of the lids may be greasy and easily removable.

Ulcerative blepharitis—This is a bacterial infection (usually staphylococcal) of glands on the lids and follicles of the eyelashes. Removal of the crusts causes bleeding. Pus forms in the follicles of the lashes and ulcers appear. While the patient sleeps, the lids become glued together. Often there is a history of repeated sties and chalazions. (A chalazion is a small cyst or tumor on the margin of an eyelid that is caused by an infection of an oil gland.) Both types are slow to heal, resist treatment, and may recur.

Treatment

For the *nonulcerative type,* dandruff of the scalp or facial dermatitis should be eliminated. Then polymyxin B-neomycin-bacitracin ophthalmic ointment should be applied with a sterile applicator or clean fingertip directly to the lashes at the lid margins.

For *ulcerative blepharitis,* hot compresses may be applied during the acute phase and in the morning if the lids are stuck together. Crusts may be removed with a moistened sterile applicator. Then polymyxin B-neomycin-bacitracin ophthalmic ointment may be massaged with the fingers on the lashes along the lid margins as described above. Polymyxin B-neomycin-gramicidin eye drops may be used during the day and the ointment applied at night and upon arising.

Medical advice by radio should be obtained. If the condition persists, the patient should consult an ophthalmologist upon reaching shore.

Conjunctivitis, General

Conjunctivitis is an infection of the conjunctiva of the eyes. Somewhat different signs and symptoms may be present depending on the specific bacterium or virus that causes the infection. As a rule, the patient will have a red

eye, a variable amount of pus, discharge, and tearing, and at times slight pain or sensitivity to light. The eyelids often stick together in the morning and it may be necessary to soak the eyes before they can be opened.

Treatment

The treatment of conjunctivitis consists of applying antibiotic eye drops or ointment, as polymyxin B-neomycin-gramicidin. Before any medication is used in the eye, the patient should be questioned about possible allergies to ingredients in the medication. Care should be taken to keep washcloths, towels, and linen from being used by other members of the crew. Food handlers should be relieved of duty until well. Most cases respond to treatment in three or four days. Even without treatment most of the cases clear by themselves within ten to 12 days with the exception of gonococcal conjunctivitis.

Conjunctivitis, Gonococcal

Gonococcal conjunctivitis is differentiated from other kinds of conjunctivitis by the presence of an acute purulent (with pus) inflammation of the eye and marked swelling, redness, and firmness of the lids. Untreated gonococcal conjunctivitis may cause corneal ulceration and scarring with loss of vision. It is usually unilateral but may spread to the other eye. The mode of transmission almost always is by fingers from the genitalia to the eye. Concurrent infection of the genitalia if present will aid in the diagnosis. Medical advice by radio should be obtained to help confirm the diagnosis before local or systemic anti-infective therapy is initiated.

Treatment

Warm saline soaks to the infected eye and antibiotic eye drops as polymyxin B-neomycin-gramicidin instilled every two hours are good supportive therapy for possible gonococcal conjunctivitis, while awaiting medical advice by radio. If gonococcal infection is confirmed, the patient should be treated with antibiotics as directed by radio medical advice. Before antibiotic eye drops are used, the patient should be questioned about possible allergies to ingredients in the medication.

Sty

A sty is an abscess of the small oil glands along the margin of an eyelid. There is usually a painful red lump in the eyelid which may increase in size, finally open, and drain pus.

Treatment

Treatment for a sty consists of (1) frequent hot moist soaks (at least four times daily, for 15 minutes each time); (2) antibiotic eye drops as polymyxin B-neomycin-gramicidin four times a day, following a hot soak; and (3) antibiotic eye ointment as polymyxin B-neomycin-bacitracin at bedtime for one week after the sty drains. A sty should not be squeezed or lanced. After the infection subsides, a small lump occasionally remains which usually disappears slowly in a period of several weeks. The lump may persist and if it is large enough will require drainage by a physician.

Keratitis (Inflammation of the Cornea)

There are several kinds of keratitis, an inflammatory condition that affects the cornea, the transparent part of the eyeball. It is more serious than conjunctivitis because scarring of the cornea may result in a serious loss of vision. Keratitis may be due to primary or secondary infections from bacteria (staphylococcal, streptococcal, or pneumococcal). A viral form is caused by the *herpes simplex type 1* (cold sore or fever blister) *virus*. Another type of keratitis is one that may accompany *shingles* (*herpes zoster*) when facial nerve cells are involved.

Corneal inflammation may be associated with ulcers that arise from abrasions or other injury. A foreign body in the eye, a scratch from a finger, or a contact lens may erode the corneal surface to set the stage for an infection that leads to keratitis. One must be careful when foreign bodies are being removed from the eye, because infectious microorganisms could be introduced into the cornea at the same time. A foreign body imbedded in the cornea should be removed with a spud* or a sterile needle—not with a cotton swab—because the cotton will destroy the surface epithelium.

**Eyespud* is an ophthalmic instrument used to remove foreign bodies from the eye. Prior training is recommended for those who intend to use it.

A small flashlight may be used to detect ulcers or other imperfections in the cornea. These imperfections produce irregular reflections, much as an irregularity would on a convex mirror. The patient should be examined in a semidarkened room. If the light from the flashlight is shined from the side onto a normal corneal surface, a clean, smooth reflection will be noted. However, if the medical attendant changes the position of the flashlight so as to vary the angle of incidence while observing the reflection of the light from the cornea, a damaged epithelium often can be identified as an irregular reflection. An antibiotic as polymyxin B-neomycin-gramacidin eye drops and protection of the eye will be necessary until the epithelium heals.

Systemic infections as tuberculosis or syphilis may be carried by the blood to the eye to infect the cornea and cause keratitis. Burns from chemicals or ultraviolet rays may produce a form of keratitis. Allergies also are a cause.

Although symptoms may vary between the several types of keratitis, usually there is a scratchy pain that is moderate to severe, redness, excessive watering of the eye, a conjunctival discharge, and blurred vision.

Treatment

For suspected keratitis, medical advice by radio should be sought. For all types of confirmed keratitis, only an ophthalmologist should provide the treatment.

For superficial abrasions of the epithelium of the cornea, local application of antibiotic eye drops as polymyxin B-neomycin-gramicidin are recommended. Drops are preferred to the ointment because the latter delays healing. An eye patch will help the patient to feel more comfortable.

For a minor corneal abrasion it is not necessary to use a cycloplegic to dilate the pupil. If medical advice by radio recommends cycloplegia, a drop of 5% homatropine hydrobromide may be instilled into the eye along with the polymyxin B-neomycin-gramicidin antibiotic eye drops. (*Do not use homatropine hydrobromide on a patient who has glaucoma;* it could aggravate the glaucoma and cause serious damage.)

The form of keratitis caused by the *herpes simplex virus* produces a superficial corneal ulceration that may be identified by using fluorescein strips. (See p. VI–22.) The fluorescein often will show a stain pattern on the cornea as a branching arrangement like veins on a leaf, with knoblike terminals. *For keratitis patients with herpes simplex virus as the suspected cause, NEVER use medication that contains cortisone or cortisone-like drugs, such as the anti-inflammatory prednisolone sodium phosphate eye drops stocked in the ship's medicine chest. It may increase the infection and cause blindness.*

Today there is specific antiviral drug therapy—idoxuridine (IDU) — for corneal ulcers caused by the *herpes simplex virus;* but this is not stocked in the ship's medicine chest.

Cortisone or cortisone-like drugs, such as the anti-inflammatory prednisolone sodium phosphate *may* be used for *herpes zoster keratitis,* if medical advice has been obtained.

Orbital Cellulitis

Abnormal protrusion of the eyeball (exophthalmos) with fever, pain, tenderness, redness, and swelling of lids and conjunctivitis may indicate probable orbital cellulitis. The protrusion may be caused by penetrating injuries, extension of infection from the paranasal sinuses and rarely by organisms carried by the bloodstream from a remote site of infection. Meningitis may become a serious complication. Inflammation of the internal tissue of the eyes (endophthalmitis) may result in permanent loss of vision.

Treatment

Antibiotic treatment should be initiated for orbital cellulitis. Penicillin G procaine 1.2 million units should be given intramuscularly twice daily. Medical advice by radio should be obtained on continuing the medication and possible evacuation of the patient. When a history of an allergy to penicillin exists, tetracycline hydrochloride 500 mg should be given by mouth, four times daily for six days.

For pain, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not tolerated by the patient, acetaminophen may be tried at the same dosage

and frequency. If pain is not controlled by aspirin or acetaminophen alone, oral codeine sulfate 30 mg may be given concurrently with either of these medications. To repeat the dosage of oral codeine sulfate, medical advice by radio should be obtained. The patient should be placed on bed rest.

Trachoma

Trachoma remains the leading cause of blindness in the world. In the United States trachoma is relatively rare, except among the Indians of the southwest. Poor diet, unsanitary conditions, and lack of medical care are factors that contribute to the prevalence of this viral disease. It usually begins insidiously with slight redness and irritation and smolders for years, gradually causing severe scarring of the cornea and eyelids. Precautionary measures should be taken to prevent infecting others. The diagnosis should be made by an eye doctor.

Treatment

A patient suspected of having trachoma should be referred to a doctor at the next port of call. In the meantime, tetracycline 250 mg should be given by mouth four times a day for three weeks, or until the ship reaches port.

Chapter V

Treatment of Diseases

Section D

GASTROINTESTINAL DISEASES

ABDOMINAL PAIN (Stomachache)

THE LOCATION, direction, and characteristics (as cramps that are steady, dull or sharp) of abdominal pain are important in determining its cause. For simplicity, pain above the umbilicus should be considered in the *upper abdominal region* and below the umbilicus in the *lower abdominal region.*

Upper abdominal pain usually is due to conditions of the stomach, upper small intestine (duodenum), pancreas, or bile ducts. Specific causes include food poisoning, gastritis, gastroenteritis (dysentery), gastric and duodenal ulcer, stone in the bile duct (usually with jaundice), and pancreatitis or pancreatic cancer. Medical advice by radio should be obtained when sudden severe pain occurs.

Upper abdominal pain on the right side generally signifies a spasm in the colon, a gallbladder attack, or a problem of the muscular wall of the abdomen. Other causes would include hepatitis and disease of the right kidney.

A common cause of *lower abdominal pain* on the right side is appendicitis. Other causes would include muscular strain or a stone in the right kidney. Such pain in females may be caused by a twisted ovary, inflamed fallopian tubes, ovarian cyst, or an ectopic pregnancy.

Pain in the left lower abdomen can occur from the causes stated in the previous paragraph with the addition of acute diverticulitis (a type of colitis). Although appendicitis rarely causes pain on the left side, it cannot be ruled out.

Pain across the entire lower abdomen or especially at the midline may be caused by enterocolitis or bowel obstruction. When the pain is mild and not associated with diarrhea, it usually is due to intestinal spasms or excessive intestinal gas. Other causes would include a urinary bladder inflammation (cystitis), inflammatory disease of the pelvic organs, and menstrual cramps in females.

Medical advice by radio should be obtained when the pain is sudden, severe or progressive, and not relieved by an antacid. Laxatives *never* should be given to a patient with abdominal pain without the advice of a physician.

APPENDICITIS

Appendicitis is an inflammation of the appendix. The appendix is a small pouch which is attached to the large intestine in the lower right portion of the abdominal cavity. The usual signs and symptoms of appendicitis include cramps or pain in the abdomen accompanied or followed by loss of appetite, nausea, and occasionally vomiting. The cramps gradually cease and the pain becomes steady and localizes in the lower right quadrant of the abdomen. Nausea and vomiting usually decrease when the pain localizes. There may be fever, a rapid pulse, constipation, or occasionally diarrhea.

If the inflamed appendix lies in the usual position, finger pressure by the medical attendant on the lower right quadrant of the abdomen may produce pain. Sometimes this pain is extremely severe. Often, one will feel tenseness or resistance in the abdominal muscles in this region while the rest of the abdomen is normally soft. Occasionally, when pressure is applied with the palm of the hand on the left side of the lower abdomen and released suddenly, a twinge of pain is felt by the patient on the right side in the region of the appendix. The patient may be extremely uncomfortable and apprehensive.

An attack may either subside or the appendix may rupture and peritonitis may develop. When peritonitis occurs, the patient may show the symptoms and signs of shock. (See Shock, p. III–9.) Generally, the temperature is elevated but very little fever may be present if the patient is in shock. In peritonitis, the area of tenderness and muscle tenseness spreads to almost the entire abdomen. The muscles may become rigid as a board.

Treatment

More lives are lost when unqualified persons perform abdominal surgery than when applying proper treatment while waiting for a physician. When evacuated by a helicopter within 300 miles of the U.S. coastline, a seaman is less than eight hours from a well-equipped modern U.S. hospital.

A laxative *never* should be given to a patient suspected of having appendicitis.

The following instructions should be carried out while waiting for medical advice by radio or for evacuation:

- Keep the patient on absolute bed rest.
- *Do not give the patient morphine sulfate if a surgeon will be available within a few hours.* Morphine sulfate may cover up symptoms and make a diagnosis more difficult. If a physician will not be available, a single dose of morphine sulfate 10 mg may be given intramuscularly, if the patient has severe pain, great discomfort, or shows extreme apprehension. Morphine sulfate will reduce or stop the muscular movement of the intestinal walls (peristalsis). To repeat the morphine sulfate, medical advice by radio should be obtained.
- Keep an ice bag over the appendix area.
- *Do not give anything by mouth* for at least 24 hours or until severe acute symptoms have subsided. Then give small amounts of liquid food as water, jello, broth, or fruit juice. As the patient convalesces, this liquid diet can be changed to a soft diet, which may be continued until all symptoms subside.

COLITIS, DIARRHEA, DYSENTERY

Colitis is an inflammation of the large intestine (colon). Usually there is diarrhea, with or without lower abdominal cramps. *Enterocolitis* is inflammation of both the small and large intestines.

Diarrhea is defined as an abnormal increase in the amount, frequency, and fluidity of the evacuations from the intestine. Diarrhea is not a disease itself but a symptom of trouble in the intestinal tract. In this respect, it is like cough, chills, and fever, which are general symptoms of many diseases.

Dysentery is an inflammation of the intestines, particularly of the large bowel. There may be griping abdominal pains and frequent stools often containing blood and mucus.

Colitis, diarrhea, and dysentery often are used interchangeably to describe a variety of conditions with diarrhea. Normally, during the process of digestion, food is moved slowly through the intestines to allow for the absorption of the food. In diarrhea, the motion of the intestines (peristalsis) is speeded up and the stools are soft or semisolid, but may become watery, possibly frothy, and may have a very foul odor.

There are many different causes of diarrhea, colitis, and dysentery. Generally, the symptoms are caused by an infectious organism or its toxic products. Infection may be caused by viruses, a wide variety of bacteria, one-celled animals as amoebic and malarial parasites, and many-celled organisms as intestinal worms.

The non-infectious causes include poisoning from heavy metals as mercury, allergies to certain foods, inability to digest foods or absorb the digested foods, and emotional upsets.

In most cases of diarrhea there is inflammation of the intestines. The loss of fluid through large watery stools may cause serious complications. Dehydration leading to coma or death may occur when extreme diarrhea is combined with vomiting. This will cause a loss of the water taken in and of water stored in the body. Severe dehydration may occur rapidly. In addition to loss of water, the loss of various chemicals normally dissolved in body fluids may cause complications and death.

Signs which may be useful in determining the cause of intestinal illness and its severity include:

- *Character of stools*—Are they watery? What is the color? Is there blood, odor, mucus, or pus? Are worms visible? Is it all liquid, or are there some formed pieces?
- *Frequency of stools*—How often does the patient pass stools?
- *Signs of dehydration*—Is the mouth very dry? Do the eyeballs seem unusually sunken? If you pinch the skin, does the fold return slowly to its former position?
- *Other signs*—Is there a rash on the skin, or vomiting?
- *History*—Has the patient ever had intestinal symptoms before, if so when? Does the patient have any idea what might be causing the symptoms?
- *Epidemiology*—Is anyone else sick? What symptoms do the patients have in common?

There are methods of controlling the incidence of diarrheal illness. In foreign ports, it is important to drink pure or boiled water, and to avoid uncooked foods and unclean eating places. Good hygiene should be maintained aboard ship. Appropriate immunizations should be kept current.

Treatment of Diarrhea

Because the mechanism governing diarrhea is basically the same, regardless of the cause, the means of controlling this symptom need not be extensive. The patient should be placed on bed rest and made as comfortable as possible. A liquid or low-residue diet should be given that includes soft drinks and broths containing salt. Milk will be helpful if it can be tolerated by the patient. Spicy, fatty, or greasy foods should be avoided. If there is blood in the vomitus or in the stools, signs of dehydration (especially a daily weight loss of 3 or more pounds), or decreasing urinary output (less than 500 ml in 24 hours), *prompt medical advice by radio should be obtained.* Intravenous fluids, isotonic sodium chloride solution or 5% dextrose and 0.45% sodium chloride solution may be ordered by the physician.

The patient's feces should be flushed into the ship's sewage treatment system or retention tank. Eating utensils and plates should be boiled for 10 to 15 minutes to disinfect them if an automatic dishwater is not available.

Although adsorbents as kaolin-pectin mixture are of limited effectiveness, they should be given for mild to moderate diarrhea. In the acute disease, diphenoxylate hydrochloride with atropine should be administered promptly. Initially, two tablets of diphenoxylate with atropine should be given four times a day. Most patients will require this dosage level until control is achieved. Then a downward adjustment of the dosage should be made. Control may be obtained from two tablets of diphenoxylate with atropine per day.

Caution

The drug diphenoxylate may make more effective the action of barbiturates, tranquilizers, and alcohol. Therefore, the patient should be observed closely when these medications are administered together. Do not give this drug to young children.

Specific causes of diarrhea and some special treatments are outlined below:

Viruses. Several viruses produce enterocolitis with or without gastritis (vomiting and upper abdominal discomfort). Usually, there is little or no fever, the onset lasts several hours and

the illness is over within two or three days. The vomitus and stools are watery without blood and mucus. The patient often feels well between bouts of diarrhea or vomiting. Epidemics or single cases may develop.

Salmonella. The salmonella organism, which may be carried in powdered eggs, powdered milk, or other food, as well as by livestock and some pets, produces one kind of food poisoning. (See p. V–23.) A shipboard epidemic of salmonelosis could occur if the organism is food-borne.

The clinical picture of salmonellosis resembles that of viral enterocolitis. Without a stool examination the diagnosis is uncertain. Mucus may be present in the stool, vomiting is absent or insignificant, and a faint rash (rose spots) may appear on the abdomen and trunk. The illness may last several days.

Shigella. These bacteria produce shigellosis, clinically similar to salmonellosis. Bloody diarrhea is more apt to occur with shigella than with salmonella. If the illness is severe, medical advice by radio should be obtained.

Staphylococcus. Staphylococcal food poisoning (see p. V–23) is caused by the toxins of staphylococci bacteria which are produced in poorly refrigerated foods as pastries, custards, and mayonnaise. The symptoms begin rapidly and violently within 1 to 6 hours after eating the contaminated food. There is considerable vomiting and diarrhea, and abdominal cramps and prostration occur.

Amoeba. Amoebic dysentery is caused by *Entamoeba histolytica*, a parasite that infects the bowel. Amoebiasis tends to be a chronic diarrheal illness that on occasion produces an acute colitis which is indistinguishable from salmonellosis or shigellosis. The diagnosis requires laboratory identification of the amoeba in the feces. Usually a fever is present and abcesses may form in the liver or elsewhere, which may prove fatal in exceptional cases.

Cholera. This is a severe acute enterocolitis caused by *Vibrio cholerae* bacteria. Epidemics still occur in the Orient, Africa, and recently in the Mediterranean. The diarrhea has the appearance of rice water and several quarts of stool may be produced per day. This may cause rapid dehydration, shock, and kidney failure if not treated with adequate intravenous fluid replacement. (See p. V–22.) *Prompt medical consultation by radio is essential and the patient should be evacuated to a hospital as soon as possible.*

Chronic ulcerative colitis. This is usually a long-standing disorder with a slow onset but it may start with acute diarrhea. The stools often are bloody and vomiting is rare. It is hard to distinguish from other forms of colitis without special diagnostic tests.

Regional enteritis. This is a chronic inflammatory condition of the small intestine and occasionally of the colon. The cause, as in ulcerative colitis, is unknown. It may begin with acute diarrhea or abdominal pain similar to acute appendicitis.

Functional or spastic colitis. This may be caused by emotional or nervous factors. Usually the disease is a long-standing disorder with alternating constipation and diarrhea. It is not an acute, prostrating condition as with the infectious types of colitis. Stools are not bloody and may or may not contain mucus.

Malabsorption and maldigestion. These conditions occur when food is not broken down (digested) so that it can be absorbed into the blood; or when digested food cannot be absorbed properly by the bowel. This is usually a chronic condition with a slow onset. The stools are bulky, foul-smelling, and sometimes frothy, often leaving an oil slick on the water of a toilet bowl. Generally, the condition does not respond to ordinary measures used for diarrhea. Malabsorption is rarely if ever a problem requiring emergency measures.

CONSTIPATION

Constipation is a symptom and not a disease. Rarely is constipation an acute or serious medical problem.

Treatment

Frequently changes in diet, environment, type of work, degree of physical activity, and emotional or nervous upsets may result in constipation. The patient should be advised to eat regularly, drink ample amounts of water, and exercise regularly. A gentle laxative such as milk of magnesia may be given. Prunes or prune juice could be added to the patient's diet.

Persistent constipation of recent onset or a change in bowel habits may indicate a serious underlying bowel condition such as cancer. The seaman should be advised to seek medical attention when port is reached.

DENTAL EMERGENCIES

The following contents are recommended for a ship board dental emergency kit:

1 Tube Orabase® benzocaine 5 gm
1 Bottle 15 cotton pellets
8 Cotton rolls
1 Bottle Dent-Aide temporary filling powder
1 Zinc oxide, USP 3 gm
1 Bottle Dent-Aide temporary filling liquid
1 Eugenol USP 2 cc
1 Dental Mirror
1 Mixing block
1 Mixing spatula
1 Tweezers
5 Squeeze cloths
1 Bottle Dent-Aide toothache drops
1 Bottle dental wax 1 gm
4 Gauze pads 2" x 2"
2 Toothpicks

The following dental first aid procedures are to relieve pain and discomfort until professional care is available.

Bleeding

Bleeding normally occurs following a tooth removal. However, prolonged or profuse bleeding must be treated.

Treatment

To treat bleeding, excessive blood and saliva should be cleared from the mouth. Then, 2" × 2" gauze should be placed over the extraction site and biting pressure applied. It is important to fold the gauze to a proper size well adapted to the extraction site. The pack should be left undisturbed for 3 to 5 minutes, then replaced as necessary. Once bleeding has stopped, the area should be left undisturbed. If bleeding is difficult to control, a 2" × 2" gauze twisted into a thin cone shape should be packed into the site, with a second 2" × 2" gauze pressure pack placed over it. The patient should apply biting pressure for 30 minutes to 1 hour and continue biting if necessary. The mouth should not be rinsed for 24 hours. A soft diet should be maintained for two days.

Lost Fillings

Fillings may come out of teeth because of recurrent decay around them or a fracture of the filling or tooth structure.

Treatment

If pain is absent, no treatment will be required for a lost filling and the patient should be advised to see a dentist when in port. If the tooth is sensitive to cold, a temporary dressing should be placed into the cavity. First, the tooth is isolated by placing a 2" × 2" gauze on each side. A cotton pellet can be used to dry the cavity. A drop of oil of cloves or eugenol should be placed on cotton and gently pressed into the cavity. Pain is usually controlled. This may be repeated 2 or 3 times daily as necessary.

Toothache Without Swelling

This condition usually is caused by irritation or infection of the dental pulp from a cavity, lost filling, or a recurrent problem in a tooth that has a filling in place.

Treatment

The patient who has a toothache without swelling of the gums or face should be advised to chew on the opposite side of his mouth. Foods should not be too hot or too cold. Pain may be relieved with aspirin 600 mg by mouth or with codeine sulfate 30 mg if the pain is severe. If the patient does not tolerate aspirin, acetaminophen at the same dosage and frequency should be given. The patient with a toothache should be told to swallow the aspirin and never to hold the tablets in the mouth as this will burn the soft tissues. If the aching tooth has a large cavity, the instructions for placing a sedative cotton dressing, described under *Lost Filling*, should be followed.

Toothache With Swelling

Toothache with swollen gums or facial tissues often results from infection by tooth decay that involves the dental pulp and spreads into the tissues of the jaws through the root canals. The condition also is common as a

result of infections associated with diseases of the gums, periodontal membrane, and the bone that supports the teeth. In all cases, frequently there is pain, swelling, and the development of an abscess with pus formation.

Treatment

The patient with mouth-facial swelling should be observed closely and the following findings noted: (1) the exact area of the swelling, initially and during the illness; (2) the type of swelling, whether soft, firm, or fluctuant (movable tissue containing a pus-filled cavity); (3) difficulty in opening and closing the mouth; and (4) the oral temperature, morning and night. These findings are important for following the patient's progress and evaluating the effectiveness of the medication used.

The pain should be controlled with analgesics as described under *Toothache Without Swelling*.

For infection, an initial dose of penicillin V potassium 500 mg should be given by mouth followed by 250 mg every six hours. If the patient is allergic to or suspected of being allergic to penicillin, oral erythromycin should be used in the same dosage and frequency. The patient should be kept on the antibiotic for at least four days after he becomes afebrile (without fever). Instructions should be given to see a dentist at the earliest opportunity.

The patient should be advised to rinse the mouth with warm saline solution (a quarter teaspoonful of table salt in 8 ounces of warm water) for five minutes of each waking hour. This will cleanse the mouth and help to localize the infection in the mouth. Also, saline solution may produce earlier drainage and relief from pain. After the pain and swelling subside, the oral rinsing should be continued until the patient is seen by a dentist.

Dental Infection

Dental infection usually occurs when decay extends into the pulp of teeth. Bacteria from the mouth will enter the tissues of the jaws via the canal in the tooth's root. The infection may remain mild or may progress to a swelling in the mouth or face, after producing fever, weakness, and loss of appetite.

Treatment

Discomfort from a dental infection may be controlled with aspirin 600 mg by mouth or with codeine sulfate 30 mg, if the pain is severe. If the patient does not tolerate aspirin, acetaminophen at the same dosage and frequency should be given. Antibiotics are used as described in the section, *Toothache With Swelling. Medical advice by radio should be obtained* to repeat the codeine sulfate or to use antibiotics.

Painful Wisdom Tooth (*Pericoronitis*)

Pericoronitis is an infection and swelling of the tissues surrounding a partially erupted tooth, usually a wisdom tooth (third molar). Often a small portion of the crown or a cusp of the offending tooth can be seen through the soft tissues. The soft tissues appear swollen and the degree of inflammation or redness may vary considerably. When the infection is severe, the patient may complain of difficulty in opening the mouth. When the area is examined carefully, pus may be found coming from underneath the soft tissues in the area of the partially erupted tooth.

Treatment

For a painful wisdom tooth, the area between the crown of the tooth and the soft tissues should be flushed with warm saline solution (a quarter teaspoonful of table salt in 8 ounces of warm water). Also, the patient should be treated as directed under *Toothache With Swelling*.

Trench Mouth (*Vincent's Infection*)

Vincent's infection, a generalized infection of the gums, is more common in young and physically run-down individuals. During the acute stage it is characterized by redness and bleeding of the gums. Usually there is a film of grayish tissue around the teeth. There is usually a very disagreeable odor and a foul metallic taste in the mouth. The acute stage may be accompanied by a moderately high fever. Lymph glands in the neck may be swollen.

Treatment

For Vincent's infection a mouthwash of equal parts of 3% hydrogen peroxide and water should be prepared. The patient should

be instructed to swish the solution vigorously within the mouth several times a day, especially after meals. A fresh solution must be prepared each time it is used.

The teeth and gums should be cleaned gently several times daily with cotton swabs moistened with the mouthwash solution. When tolerated, a soft toothbrush may be used carefully. *Although often uncomfortable, cleaning the gums and teeth is an essential phase of treatment.*

The patient should be advised to eat an adequate diet but avoid hot or spicy foods. The fluid intake should be increased.

For pain, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency. If the pain is not controlled by aspirin or acetaminophen alone, codeine sulfate 30 mg should be given by mouth with aspirin or acetaminophen. To repeat the codeine sulfate, medical advice by radio should be obtained.

For infection, an initial dose of penicillin V potassium 500 mg should be given by mouth followed by 250 mg every six hours. If the patient is allergic to or suspected of being allergic to penicillin, oral erythromycin should be given at the same dosage. The patient should be kept on the antibiotic until at least four days after the fever has left. He should be instructed to see a dentist at the earliest opportunity.

Denture Irritation
(Partially or Fully Removable Dentures)

Generalized inflammation in the denture area usually is due to poor oral hygiene. Inflammation in localized areas usually requires some alteration or adjustment of the denture by a dentist. These localized areas usually are located where the border of the denture rests against the tissues.

Treatment

The patient should avoid using the denture until the soft tissues have healed. The denture should be cleaned carefully with mild soap and water, and stored in a water-filled container to avoid dehydration of the base material of the denture. The patient should be referred to a dentist for appropriate denture adjustment.

DIABETES MELLITUS (Sugar Diabetes)

In diabetes mellitus, the body is unable to use or to store all of the sugar derived from the carbohydrates normally eaten. The excess sugar remains in the blood and spills over into the urine, carrying water with it. This loss of sugar and water from the body causes increased appetite and thirst, frequent urination, and loss of weight.

Diabetics do not produce enough insulin which is a hormone secreted into the blood by the pancreas. Adjustments in the metabolism of sugar have to be made by changing the diet and/or the amount of insulin. Urine sugar (glucose) determinations help to determine the proper adjustment of diet and insulin needs. There are two basic methods for testing the urine, with each having its place in the control of the diabetic. One is the *glucose oxidase method* with such brands available as Testape,* Clinistix,* and Ketodiastix.* The other is a *copper reduction test method* with a brand such as Clinitest* tablets. When tests show large amounts of sugar in urine taken from diabetics before they have eaten breakfast, the diabetes is not well controlled. Testing should be done on arising before breakfast, and more frequently if indicated. If acetone is present in the urine, the patient may go into a diabetic coma. (See p. V–21.)

Most diabetics prefer to use the *glucose oxidase test method* which is quick, convenient, easy to use, and requires no special equipment. However, should accurate determination of the amount of glucose in the urine become necessary to adjust the insulin intake, the *copper reduction test method* should be used.

Treatment

Diabetics generally are divided into three categories for treatment: (1) the diabetic treated with diet alone; (2) the diabetic treated with diet plus insulin; and (3) the diabetic who is treated with diet and oral blood sugar lowering agents (hypoglycemic agents).

- ***Diet***

The initial treatment consists of adjusting the diet to eliminate the need for insulin. Many

* Trade names.

diabetics are treated successfully by diet alone. In the diabetic diet, special emphasis is placed on weight control, regular habits of eating, and avoidance of excess starches and sugars. The final diet consists of a varied and satisfying menu that is equally acceptable to a nondiabetic.

• *Diet Plus Insulin*

If diet alone does not control the disease, injections of insulin generally are prescribed. Insulin is used as replacement therapy. It supplements deficient levels of insulin in the body and temporarily restores the ability of the body to utilize properly carbohydrates (sugars and starches), fats, and proteins. The patients on insulin will have been instructed about the technique of administration and the kind and amount of insulin to be used. To meet an individual patient's needs, a variety of insulin preparations are available. However, for use in an emergency such as diabetic coma, regular insulin is used.

• *Diet and Oral Blood Sugar Lowering Agents (Hypoglycemic Agents)*

In selected cases, oral medications may be prescribed to lower the blood sugar. Most of these preparations help the pancreas to release more insulin. Five common medications of this type are: acetohexamide, chlorpropamide, phenformin hydrochloride, tolazamide, and tolbutamide.

Insulin Reactions

Insulin Shock (Hypoglycemia)

Insulin shock will occur if too much insulin is given, too little food eaten, a meal delayed too long, or an unusual amount of exercise or work is done. Prior to becoming unconscious, the patient may have emotional changes, a headache, numbness and tingling, poor coordination, a staggering gait, and slurred speech. Also, convulsions may occur. When the blood sugar falls below the normal level, the patient may appear pale, break out in a cold sweat, and have a rapid heart beat. Many of these symptoms suggest alcoholic intoxication. The treatment for insulin shock occasionally has been delayed with fatal results, because the odor of alcohol was on the diabetic's breath.

Treatment

When an insulin reaction occurs or when there is doubt as to the cause of unusual behavior or unconsciousness, the *conscious patient* should be given a rapidly absorbable carbohydrate by mouth as orange juice or a candy bar. *Fluids should not be given to an unconscious person.* Glucagon 1 mg should be given intramuscularly immediately. Glucagon will return the glucose blood levels to normal or near normal within 30 minutes in most adults. Fifty ml of dextrose 50% in water should be injected intravenously if the coma deepens or continues after 30 minutes, if the patient convulses, or a physician recommends it. A large bore needle (20 gauge) should be used for the injection. If a lump begins to rise under the skin, the injection must be stopped and the old needle discarded. Then a new sterile needle should be used to enter a vein at a different site. The lump in the skin showed that the needle did not enter a vein.

Emergency treatment *must be administered first,* and medical advice obtained by radio. Other causes of coma should be considered.

Diabetic Coma (Ketoacidosis, Hyperglycemia)

Overindulgence in food, too little insulin, injury or burns, infection, pain, anxiety, or decreased activity can lead to increased blood sugar (*hyperglycemia*) and an increased loss of sugar and water in the urine. With insufficient insulin the body is not able to convert all of this sugar into energy. Then fat normally stored in the body is broken down for energy, and poisonous acidlike substances accumulate.

Some of these substances excreted in the urine as acetone or ketones can be detected with commercial products as Acetest* tablets or Bili-Labstix.* The acetone test should be performed whenever a diabetic has a high level of glucose in the urine. Some of these acid products are exhaled from the lungs and give the breath a peculiar sweetish odor. These substances also cause dryness of the mouth and rapid, deep respirations (air hunger). The patient may be thirsty, the skin dry, and the eyeballs soft and sunken due to the loss of

* Trade names.

fluid. Abdominal pain, slight fever, nausea, and vomiting may occur. Urine tests for sugar and acetone are very important and should be performed before medical advice is sought by radio.

Treatment

If not treated, diabetic acidosis may cause unconsciousness (diabetic coma) and eventually death. *The most important step in treatment is to give fluids and insulin.* Crystalline (regular) insulin should be given according to medical advice received by radio. If there is any delay in obtaining medical advice, an initial dose of regular insulin should be administered subcutaneously. The results of the *urine test for sugar and acetone* should be used as a guide for the following initial dose:

If urine sugar is	and acetone is	then give this insulin
3+	negative	10 units
3+	positive	15 units
4+	negative	15 units
4+	positive	20 units
4+	strong positive	30 units

Fluids should be given to replace the excessive loss of salt and water from the body. The patient should be encouraged to drink large quantities of water, broth, soup, and fruit juice. Sodium chloride injection 0.9% should be started intravenously while awaiting medical advice by radio for further treatment.

The Diabetic and the Job

During the physical examination at the time of signing-on, a diabetic should be evaluated and accepted for sea duty in accordance with the facilities available.

Diabetes, a common disease, may first appear or become exaggerated under such trauma as burns, infections, diarrhea, vomiting, and emotional disturbances. Medically-trained crew members should watch for excessive thirst and urination following any of these events.

To maintain good control of their disease, diabetics require a great deal of self-discipline. They learn the type of food that they should eat and the quantity. They must maintain a balance between their food intake and insulin dosage. Adult diabetics may control their disease with diet alone or with diet plus oral medication. (See p. VII–30.)

The diabetic treated with diet alone or with diet and oral medications will not need any employment restrictions and may be assigned to both hazardous and non-hazardous jobs. On the other hand, diabetics who require insulin should not be assigned a job where an unexpected insulin reaction will physically endanger either themselves or their co-workers. They should not be assigned to potentially hazardous jobs, such as working on scaffolding or near unshielded machinery.

DIGESTIVE DISORDERS

The signs and symptoms of illness of the digestive tract include stomach pain, nausea and vomiting, diarrhea, bloating, belching and gas, vomiting of blood, bleeding from the bowel, constipation, and jaundice (yellow skin and eyes). The stomach and intestines may be upset by many kinds of sickness or injury.

Treatment

Until appendicitis is ruled out, a cathartic or laxative should not be given if the patient complains of pain in the abdomen. (See Appendicitis, p. V–15, and Abdominal Pain, p. V–14.) Appendicitis probably can be excluded if several members of the crew have pain in the stomach at the same time. Under such circumstances, the cause may be due to food poisoning (see p. V–23), or an epidemic intestinal infection as dysentery. (See Diarrhea, p. V–16.)

If the diagnosis for a digestive condition is uncertain, frequent small feedings should be given instead of occasional large meals. Until a definitive diagnosis is made, the diet should be limited to foods that are digested easily. Pepper, spices, coffee, fried or greasy foods, leafy vegetables and roughage (except in simple constipation) should be avoided. Usually, soft-boiled eggs, creamed soups, milk, chipped beef, baked potato, toast, crackers, custard, gelatin, and small amounts of fruit juice are well tolerated.

The diet should be limited to liquids until the fever goes down or nausea passes. Often a jaundiced person cannot tolerate fat (butter, cream, or grease) and should be given plenty of sugar and lean boiled or broiled meat.

Medical advice by radio should be obtained before treating a patient with severe abdominal complaints.

Food Poisoning

Bacteria account for most cases of food poisoning in the United States. Food poisoning as discussed in this section relates to intestinal symptoms usually caused by certain bacteria that seem to thrive in the gastrointestinal tract, especially the intestines. Usually these bacteria are transmitted by fecal contamination of food or water in areas with poor sanitation or situations where people neglect to practice good hygienic procedures.

Food poisoning is a general term applied to various illnesses that begin in the intestine(s) after contaminated food or water have been consumed. Not included here are intoxications caused by chemical contaminants (as fluorides, lead and other heavy metals); or intoxications caused by organic substances present in natural foods as mushrooms, eels, mussels, or other seafood. (See pp. III–60, V–26.)

Bacterial Food Poisoning

Food poisonings caused by bacteria are classified either as *food intoxications* or *food infections*. A *food intoxication* results from harmful toxins (poisons) formed by bacteria in contaminated food before it is eaten. In a *food infection* bacteria produce their harmful effects directly in the intestines after being ingested with the food. No matter whether it is a food infection or a food intoxication, the effects on the body are much the same. After eating the contaminated food, there is a sudden onset of symptoms, as diarrhea, cramps, nausea, and sometimes vomiting, headache, fever, or chills.

A common cause of food poisoning is the handling of food by people with cuts or wounds, sore throats, and intestinal diseases. Or food may become infective from bacteria carried by flies, cockroaches, rats, and mice. Bacteria will multiply at a rapid rate in food mixtures that are prepared several hours before a meal and allowed to stand unrefrigerated at room temperature. This high rate of bacterial growth is likely to occur in unrefrigerated protein foods, as meats, processed meats or meat mixtures, seafoods, milk and milk products, eggs (especially dried eggs), custard cream fillings in pies and other pastries, chicken and potato salads, and salad dressings.

Prevention

In most outbreaks of food poisoning, the infected food will not have changed in appearance, taste, or smell. So prevention of food poisoning should begin when meats or other foods are first inspected. Foods should be condemned and discarded if found to be below standard. Canned foods showing gas formation (the bulging or swelled can), or food that is unnaturally soft and mushy, should not be eaten. Equally important is proper, sanitary handling of food in the galley, storerooms, and mess hall. All those who handle food or utensils for food preparation aboard ship are directly responsible for the health of their shipmates. All food handlers should take extra care to keep themselves, the gear they work with, and the food they handle, as clean as possible. After soiling the hands, whether in the ship's head or elsewhere, thorough washing with soap and water must be done. If in doubt about whether a food is *safe*, do not rely on tasting the contents. If in doubt throw it out.

Staphylococcal Food Poisoning

This type of food poisoning is called staphylococcus toxin gastroenteritis. It is caused by a preformed enterotoxin that grows on a variety of foods (custards, cream-filled pastry, milk, processed meat, and fish) prior to ingestion. It is probably the principal cause of food poisoning in the United States. Food handlers with staphylococcal skin infections usually are responsible for its spread.

About two to four hours after the contaminated food is eaten, the onset of symptoms will be abrupt: diarrhea, cramps, nausea, vomiting, occasional headache and fever. In severe cases acid-base imbalance, prostration, and shock may occur. At times the temperature will be subnormal with a noticeable drop in blood pressure. Occasionally, blood and mucus may be found in the stools. The attack may last only a few hours, and at the most a day or two.

Usually diagnosis is based on recognition of several cases with the usual acute GI (gastrointestinal) symptoms occurring shortly after eating a common item of food, with an attack that lasts only a short time, followed by rapid recovery.

The human being usually is the source of infection. The toxin-producing staphylococci can originate from the infected hands, abscesses, or nasal discharges of food handlers, or from apparently normal skin on arms and forearms. Contaminated milk or milk products also are sources of the bacteria. The following foods when unrefrigerated may harbor staphylococcal bacteria: custards, pastries, salads and salad dressings, sandwiches, sliced meats, and meat products. Ham and bacon, milk from cows with infected udders, and at times dried milk have been implicated in outbreaks of staphylococcal food poisoning.

Prevention

The following measures will help to prevent staphylococcal food poisoning:

(1) Promptly refrigerate potentially hazardous foods to avoid multiplication of staphylococci accidentally introduced into the food; (2) Leftover foods should be refrigerated promptly or disposed of at once; (3) Persons with skin infections should not be allowed to handle food; (4) Food handlers with respiratory infections, who cannot be replaced, should be issued face masks. Disposable gloves should be given to salad mixers and other workers who use the hands to prepare foods; (5) Food handlers should give strict attention to sanitation and cleanliness of kitchens, including proper refrigeration, handwashing, attention to fingernails, plus being on the alert to the dangers of working with foods while having a skin infection; and (6) Custards prepared commercially should be pasteurized.

Treatment

For acute staphylococcus food poisoning, usually no specific treatment is required. In mild cases, cure follows such measures as rest in bed with general nursing care. Cleansing enemas should be given to remove any toxin that remains in the colon. Light liquids as water, tea, barley or rice water, or bouillon with added salt may be given. For mild to moderate diarrhea, although of limited effectiveness, kaolin mixture with pectin may be given according to directions on the container. Initially in the acute stages of diarrhea, two tablets of diphenoxylate hydrochloride with atropine sulfate should be given four times daily. After control is achieved, a lower dosage of one tablet three or four times daily may be indicated for several days.

In severe cases or when marked dehydration of the patient results from prolonged vomiting or diarrhea, medical advice by radio should be obtained. Intravenous administration of fluids such as dextrose 5% and sodium chloride 0.45% injection may be recommended. (See p. VII–12 for information on intravenous administration procedure.)

Food Poisoning by Clostridium perfringens (C. welchii)

This is an intestinal infection (not an intoxication) caused by strains of *Clostridium perfringens* (*C. welchii*) bacteria. There is an abrupt onset of abdominal pains or spasms followed by diarrhea. Nausea is common but vomiting is absent. Usually this is a mild disorder of one day or less.

The infection is transmitted by eating food contaminated with feces. Outbreaks of the disorder usually are associated with meats: at times with fresh meats not thoroughly cooked, but generally from stews, meat pies, reheated meats, or gravies made from beef, turkey, or chicken. Outbreaks have been traced to catering firms, restaurants, and cafeterias.

Prevention

Preventive measures against *Clostridium perfringens* food poisoning are as follows: (1) After meat dishes have been cooked, they should be served immediately while hot—or cooled rapidly until eating time, then rapidly reheated, if necessary; (2) Large cuts of meat should be cooked adequately; (3) Stews and similar dishes prepared in bulk should be divided into small lots for cooking and refrigeration; and (4) Food handlers should be taught about the risks connected with large-scale cooking—especially of meats.

Treatment

For *C. perfringens* food poisoning the treatment is the same as that stated above for staphylococcal food poisoning.

Salmonellosis Food Poisoning

Salmonella bacterial strains cause this food infection (not an intoxication). The incubation period in the body takes 6 to 48 hours before symptoms appear. The infection is characterized by acute gastroenteritis of sudden onset that includes abdominal pain, diarrhea, nausea, and vomiting. Dehydration may be severe and fever nearly always is present. There is a loss of appetite and loose bowels may persist for several days. Some patients have difficulty in urinating and shock may develop. For most people the attacks are mild, but in some cases the infectious bacteria may produce localized abscesses in any part of the body, affect the gallbladder, heart, kidneys, or cause pneumonia, arthritis, or meningitis. Some patients remain carriers for several months after recovery.

The infection is transmitted by eating food contaminated by feces of humans or other animals. Suspect foods may be whole eggs or egg products, meat and meat products, and poultry. Pharmaceuticals of animal origin, animal feeds, and fertilizers can become contaminated. Epidemics have been traced to working surfaces or tables previously contaminated by foods, as poultry products.

Prevention

To prevent food poisoning by salmonella, the following should be done: (1) Cook thoroughly all foodstuffs from animal sources, especially poultry, egg products, and meat; (2) Avoid eating raw eggs and avoid using dirty or cracked eggs; (3) Refrigerate prepared foods whenever stored before use; and (4) Instruct food handlers on the necessity for refrigerating foods, washing hands before and after food preparation, maintaining a sanitary kitchen, and protecting all stored foods against insect and rodent contamination. Domestic animals and pets may become infected with salmonella.

Treatment

For food poisoning or infection from *Salmonella* organisms, the treatment is the same as that for staphylococcal food poisoning. (See p. 158.)

Botulism Food Poisoning

Botulism is a highly fatal food poisoning (an intoxication, not an infection) that is caused by the bacterium, *Clostridium botulinum*. In improperly preserved foods these germs grow in the absence of air to produce one of the most potent poisons known. In the United States the toxin usually is found in poorly preserved non-acid vegetables as string beans, corn, spinach, olives, beets, asparagus, and seafood, beef, and pork products.

Signs or symptoms can begin in a few hours or as late as eight days after ingestion of the contaminated food. The usual time lapse is 18 to 36 hours. Generally, persons with an early onset of illness (within 24 hours) will be affected severely, be more likely to die, and if they survive, will have a slower recovery period.

Symptoms of botulism are body weakness, headache, and nerve paralysis that causes difficulties in breathing, seeing, and swallowing. Visual disturbances include double vision, loss of acuity, drooping of upper eyelids, and a diminished or total loss of the pupillary light reflex. Usually intestinal symptoms are absent, although some outbreaks have resulted in early nausea and vomiting. Difficulty in swallowing may lead to aspiration pneumonia. Muscular movements may be uncoordinated, and dizziness and restlessness may be present. Usually the body temperature remains normal, unless the patient also has another disease.

Mortality may be as high as 65%. Most fatalities occur from the second to the ninth day following ingestion of the toxin. Death usually results from respiratory paralysis or secondary pneumonia. In survivors the disease reaches its peak in 10 days, after which recovery is slow and the eye muscles may be weak for months. There should be no permanent aftereffects.

The diagnosis of an isolated case of botulism is suggested by the pattern of the neuromuscular disturbances. However, a likely food source provides an important clue. The diagnosis is simplified when two or more cases occur after eating the same meal. Further confirmation can be gotten if the same symptoms occur in pets that have eaten the contaminated food.

Prevention

The spores of *C. botulinum* are highly resistant to heat. However, heat rapidly destroys the toxins, so cooking food at 176° F

(80° C) for 30 minutes before eating it, will safeguard against botulism.

All foods that show evidence of spoilage should be discarded—as commercially prepared canned foods that show bulging at the ends of the can. When such cans are found, they should be reported to health authorities and grocers.

Treatment

When botulism is suspected aboard ship, medical advice by radio should be obtained at once. It is important that the polyvalent antitoxin (as a minimum types A, B, and E) be given intravenously to those ill or exposed within 12 to 18 hours. Appropriate tests for sensitivity should be made. If evacuation is not possible within this time period, consideration should be given to using an airdrop to get the antitoxin.

The patient should be kept in a darkened room and watched constantly. Only those concerned with his care should be admitted to the room. If breathing stops, artificial respiration should be given and attendants should be prepared to administer it for hours. If severe vomiting persists or the patient cannot swallow, dextrose 5% and sodium chloride 0.45% injection may be recommended to be infused intravenously to manage dehydration and acid-base imbalance.

Morphine sulfate should be avoided because it will make difficult respiration even worse. To relieve anxiety, phenobarbital may be administered orally or pentobarbital administered intramuscularly in a dose of 30 to 60 mg., three to four times daily.

Oral medication and feeding should be carried out with caution because of the danger of aspiration; and rectal and parenteral routes of administration will have to be used if the patient cannot swallow. It may be necessary to feed the patient intravenously for several days. The patient should be encouraged to force fluids to maintain a daily urinary output of at least 800 ml.

When the patient has difficulty swallowing, mouth secretions must be removed by suction because their accumulation may result in aspiration, followed by pneumonia. If the patient cannot swallow at all, a tracheostomy may be lifesaving. If necessary, oxygen can be given through the tracheostomy tube. To prevent lung collapse, the patient should be turned frequently from side to side.

As signs of recovery are noted and the patient is able to swallow, medical advice on diet should be gotten by radio.

*Nonbacterial Food Poisoning**

Some plants and animals have naturally occurring poisons. It is possible to contact these on and off the ship. Examples discussed here are certain fish, mushroom-like toadstools, and mussels.

Fish Poisoning

Some fish are naturally poisonous. Other varieties that are safe to eat in some localities may be found highly toxic in other regions of the world, because they feed on poisonous plankton. Highly suspect should be fishes living in reef areas.

These classes of poisonous fish include:

- *Pacific type*—Barracuda, black ulna, red snapper, sea bass, and trigger fish.
- *Caribbean type*—Cavallas, amberjack, great barracuda, groupers, and sierra, among others.
- *Tetraodon type*—balloon fish, globe fish, puffers.

Symptoms that may develop immediately or within 30 hours after eating the food are numbness of limbs, tingling sensation around the mouth, diarrhea, nausea, vomiting, abdominal pain, aching joints, fever, sweating, chills, itching, painful urination, and extreme exhaustion. Muscle weakness, incoordination, and paralysis are common. The severity of the attacks varies greatly. The Caribbean type is usually nonfatal. The overall mortality for the Pacific type is not greater than 3%, while that for the Tetraodon type is over 70% in Japan.

Treatment

Bed rest is required for patients with fish poisoning. If vomiting or diarrhea have been violent, stomach lavage or use of an emetic will

* Adapted from the *Merck Manual of Diagnosis and Therapy*. Published by Merck & Co., Inc., Rahway, New Jersey. 12th edition, copyright 1972. pp. 714–6.

not be necessary. However, if diarrhea or vomiting were little or none, gastric lavage should be used to remove the bulk of the poison. An emetic such as ipecac syrup 15 ml with one to two glasses of water should be given by mouth *for mild cases only of fish poisoning, but never in mussel and mushroom poisoning.* If nausea and vomiting continue, fluids such as dextrose 5% and sodium chloride 0.45% may be injected intravenously to combat dehydration and acid-base imbalance. For pain 50 to 100 mg of meperidine hydrochloride may be given intramuscularly every four to six hours.

Mussel Poisoning

From June to October, especially on the Pacific coast, clams and mussels may ingest a poisonous protozoan (dinoflagellate) that produces mytilotoxin which is not destroyed by cooking. In 5 to 30 minutes after ingestion, the first symptoms appear—a burning, tingling sensation around the mouth. Nausea, vomiting, and abdominal cramps occur, followed by muscle weakness and paralysis along the outer surface of the body. Death may occur from respiratory failure.

A shellfish poison called "venerupin" has been isolated following outbreaks of food poisoning in Japan after the ingestion of asari (*Venerupis semidecussata*) and the oyster (*Otrea gigas*). In 24 to 48 hours gastrointestinal symptoms develop with increased numbers of leukocytes in the blood, retardation of blood coagulation, and disturbances in liver function. About one-third of the patients die. This shellfish toxin does not affect nervous tissue like mussel poison does (described above).

Treatment

For mussel poisoning the treatment is the same as that described above for fish poisoning. Get medical advice by radio but do not use an emetic.

Mushroom (Toadstool) Poisoning

For suspected mushroom poisoning medical advice by radio should be gotten at once. There are several poisonous varieties of mushroom-like fungi, but two species cause most of the illness: *Amanita muscaria* and *Amanita phalloides.*

Amanita Muscaria

A. muscaria produces the toxic drug muscarine that has a harsh action on parts of the nervous system. It causes death less frequently than *A. phalloides* (see below). Muscarine symptoms appear within a few minutes to two hours after ingestion: excessive saliva is secreted, tears flow, pupils of the eyes constrict, there is profuse sweating, vomiting, abdominal cramps, diarrhea, thirst, dizziness, confusion, collapse, coma, and occasionally convulsions.

Treatment

For muscarine poisoning by *Amanita muscaria,* atropine sulfate 1 mg should be given subcutaneously or intravenously every 1 or 2 hours until the symptoms are controlled. Otherwise, treat as described above for fish poisoning.

Amanita Phalloides

A. phalloides poisoning is due to a toxin that liquifies various body cells, especially red corpuscles in the blood. Symptoms begin six to 15 hours after ingestion with sudden onset of nausea, vomiting, diarrhea, and abdominal pain. Stools and vomitus often are streaked with blood. Dehydration is extreme and kidney function may be affected with reduction in the quantity of urine produced. Jaundice due to liver damage follows in one or two days. Symptoms of damage to the central nervous system (CNS) usually are present, as jaundice, an enlarged tender liver, and diminished tendon reflexes.

Treatment

For poisoning from *A. phalloides,* to prevent severe liver damage, a high carbohydrate diet should be given supplemented by an intravenous injection of dextrose as recommended by radio medical advice. Otherwise, treat the same as for fish poisoning (described above).

Gallbladder Disease, Acute

Acute inflammation is the most frequent complication of a chronically inflamed gallbladder with stones. Acute cholecystitis (inflammation of the gallbladder) may be the first manifestation of gallbladder disease, but ordinarily it occurs after repeated attacks of

biliary colic. Although acute inflammation of the gallbladder may occur at any age, it is most common after 40. Pains in the right upper quadrant of the abdomen develop, persist, and become steady; these usually are associated with nausea and vomiting and intensified by deep breathing. Tenderness is present in the right upper abdomen. Involuntarily, the patient may tighten the abdominal muscles when gentle firm pressure is applied.

Treatment

Many cases of acute inflammation of the gallbladder subside with treatment. However, some cases develop complications. If the symptoms are severe, the patient should be placed on bed rest and oral fluids. Foods should be withheld until the acute symptoms subside. If there is considerable vomiting, dextrose 5% and sodium chloride 0.45% should be administered intravenously to replace body fluids. To relieve pain, meperidine hydrochloride 75 mg to 100 mg may be given intramuscularly every four to six hours as required.

Belladonna tincture 0.2 ml (approximately 10 drops) by mouth may be given in a half glass of water, two or three times a day to help control the gallbladder spasm. This medication should be discontinued if the patient complains of blurred vision. (See p. VI–11.)

Gallstone Colic

Gallstone colic is caused by the passage of a stone through the bile duct leading from the gallbladder to the small intestine. The pain which is sharp, knifelike, severe, and associated with vomiting, starts in the right upper quadrant of the abdomen. Usually, a sore spot will be found that is tender to pressure. The pain may be intense, and the patient may groan, toss about the bed, and gasp for breath. The attack, which may last several hours, stops after the stone works its way through the bile duct and is discharged into the intestine. Attacks may recur as new stones enter the duct. The pain may spread to the back, beneath the right shoulder blade, and sometimes to the right shoulder.

When the stone or stones block the duct, bile is prevented from following its normal path from the liver to the small intestine. If blocked long enough, a sufficient amount of bile is absorbed and the whites of the eyes become yellowish, the urine dark colored, and the stools light- or clay-colored. (See Jaundice, p. V–30.)

While the acute attack of pain usually ceases as soon as the stone passes out of the bile duct, other symptoms of gallbladder disease may remain. Jaundice gradually disappears after the stone is passed.

If the stone becomes lodged permanently in the bile duct, the pain will persist but may become less severe. When the stone blocks the bile duct, jaundice will continue. Infection of the gallbladder, which causes chills and fever, is an additional complication.

Treatment

Medical advice by radio should be obtained for patients exhibiting symptoms of gallbladder disease. The patient should be advised to see a doctor at the first convenient port.

The patient should be placed in bed and vital signs checked every hour or two. Food and liquids should be withheld during the acute attack. If the abdominal pain is severe or persists, the patient should be given meperidine hydrochloride and/or belladonna tincture as described previously for acute gallbladder disease. After the severe attack has diminished, aspirin 600 mg should be given by mouth for pain every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be given in the same dosage and frequency. The patient should be started on belladonna tincture 0.2 ml (approximately 10 drops) by mouth in a half glass of water two or three times a day, to help relieve any discomfort. During the acute stage, dextrose 5% and sodium chloride 0.45% solution should be administered intravenously to replace body fluids. Medical advice by radio should be obtained.

After the patient becomes more comfortable and vomiting stops, cracked ice should be given by mouth every 15 minutes. Then quantities of clear fluids should be given gradually. A soft diet, which is as fat free as possible, should be started as the patient recovers.

Gastritis, Acute

Acute gastritis or inflammation of the lining of the stomach accompanies dietary or

alcoholic indiscretion, food or chemical poisoning, acute infectious diseases, ulcer, or cancer.

There is nausea and vomiting and possibly pain, thirst, fever, and coated tongue. Distention and tenderness may be present in the middle of the upper abdomen. Vomiting may be excessive and tinged with blood.

Treatment

In the first 24 hours only sips of water or hot tea should be given. Aluminum hydroxide gel, with magnesium hydroxide or magnesium trisilicate oral suspension, 15 ml may be given for any discomfort. Liquids, followed by a soft diet, are advisable. The patient should be kept at bed rest, quite, and warm. (See Indigestion, below.)

Indigestion

Indigestion occurs when food fails to undergo the normal changes of digestion in the alimentary canal. It is a symptom rather than a disease. Occasional indigestion may be of no consequence, but when chronic it may indicate such serious maladies as cancer or an ulcer.

The symptoms may include discomfort after eating, fullness in the upper stomach, bloating, belching, gas, heartburn, pain beneath the breastbone, nausea, headache, foul breath, coated tongue, constipation, or inability to sleep.

The causes of occasional attacks of acute indigestion are:

- ***Overeating,*** excessive drinking or smoking, and eating irritating foods.
- ***Emotional upset.*** The digestive secretions, intestinal peristalsis and other functions of the digestive tract are disrupted if a person eats when angry, depressed, or emotionally upset.

Food allergies (See p. V–86.)

Treatment

For mild attacks of indigestion, aluminum hydroxide gel with magnesium hydroxide or magnesium trisilicate oral suspension, 15 ml should be given every hour until the symptoms subside. If the patient is distressed sufficiently but has not vomited, vomiting should be induced. This may be accomplished by having the patient drink one or two pints of warm salt water (1 to 2 teaspoonfuls of table salt to a pint) and having him touch the back of his throat with his finger. It severe pain is present, a hot water bag should be applied to the upper abdomen.

For chronic indigestion, the diet should be limited as far as possible to foods that will cause the least distress to the patient. The patient should be advised to eat slowly and chew his food thoroughly. Bowel regularity should be maintained. It is important to find the underlying cause of the indigestion because it may point to a very serious disease. The patient should be advised to consult a physician at the next port of call.

Intestinal Obstruction

Complete blockage of some portion of the intestines may be caused by the accumulation of hard fecal matter, a strangulated hernia, adhesions (sticking together) of the coils of the intestines, tumors, or kinks in the bowel. There is usually a sudden onset of severe abdominal pain, without fever, accompanied by constipation. There may be nausea, vomiting, and after a matter of hours or days, the abdomen may become distended with gas.

Treatment

Medical advice by radio should be obtained. In the meantime, the patient should be kept at absolute bed rest. Food and water should be withheld except for ice chips which may be taken by mouth.

The obstruction may be a fecal mass in the rectum which can be removed by an enema (sodium biphosphate and sodium phosphate solution). Sometimes it is necessary to remove pieces of the hard fecal matter from the rectum by hand. A rubber glove or a rubber finger-cot should be worn. However, the bare finger can be used. The gloved finger should be lubricated with petrolatum and inserted gently into the patient's rectum. If a mass of hard fecal matter is felt low in the rectum, it should be broken up by gentle movement of the finger so that it can be passed by the patient, or helped out by the finger or the enema.

Applying a hot water bottle to the abdomen may relieve pain. Fifteen drops (0.3 ml) of tincture of belladonna may be given in a quarter glass of water every six hours. If the pain is severe and the patient's condition seems to be getting worse, morphine sulfate 10 mg should be given intramuscularly. To repeat the morphine sulfate, medical advice by radio should be obtained.

If the patient goes into shock, he should be treated as described on p. 57. If vomiting continues, it may be necessary to replace the fluid by giving 1,000 ml dextrose 5% and sodium chloride 0.45% solution intravenously. *Medical advice by radio should be obtained.*

Jaundice

Jaundice refers to the yellowish discoloration of the whites of the eyes and skin that occurs when bile is absorbed into the blood, instead of passing from the liver through the bile duct into the intestine.

Jaundice is a symptom of an illness and not a disease. It may indicate acute infectious hepatitis. Jaundice may accompany yellow fever, liver diseases, cancer, gallbladder disease, gallstones, malaria, and certain blood diseases.

In a typical case, the skin and the whites of the eyes are yellowish, greenish-yellow, or brownish-yellow. However, medications like quinacrine and atabrine also may cause a yellowish color. The urine may be dark mahogany in color and when shaken the froth is yellowish or brownish instead of white. The stools may be light in color and have the appearance of clay or putty. Also, the skin may itch.

Treatment

When medical advice by radio is requested on jaundice, specific information should be given as the presence or absence of pain in the stomach, chills and fever, and blood in the stools. Until advice is received, a soft and fat-free diet should be given and the patient placed on bed rest. (See p. VII–29.)

If there is any reason to suspect yellow fever, the patient should be isolated and the case reported to the authorities. (See p. V–59.) When the ship reaches port, the patient should be advised to see a physician.

Ulcers, Peptic (Gastric or Duodenal)

A peptic ulcer is an open sore, usually benign, that occurs in the mucous membrane of the inner wall of the digestive tract in or near the stomach. Peptic ulcers are of two types: (1) *gastric ulcers* that occur in the stomach and (2) *duodenal ulcers* that form in the duodenum, the first section of the small intestine that is separated from the stomach by the pylorus. Although the cause of these ulcers is obscure, excessive secretion of hydrochloric acid and gastric juice in the stomach is an important factor in their production.

In normal digestion, both the stomach and duodenum are exposed to the action of the gastric juice. Oversecretion of the acid-gastric juice is a prime factor in the production of duodenal ulcers and the reactivation of healed ulcers. Emotional strain, as suppressed anger or other psychological problems, is a contributing factor to ulcer formation. Certain medications (as aspirin and the salicylates, phenylbutazone, prednisone) or excessive use of alcoholic beverages may cause ulcers.

The symptoms of peptic ulcer often follow a predictable pattern. However, these symptoms can be deceptive because they mimic other disorders of the digestive tract such as hiatal hernia, simple gastritis, and diseases of the liver, gallbladder, large intestine, pancreas, and right kidney. The various organs involved with these diseases are located near the stomach and duodenum.

Pain, the most common symptom of a peptic ulcer, is felt in the middle of the upper abdomen, at times under the tip of the breastbone. Usually the pain is steady, but it can be intermittent. At times it merely may be an annoying, burning pain. The pain is relieved when food is eaten, but tends to recur two or three hours after a meal or during the night when the stomach-duodenum region is empty and the gastric juice irritates the sore. Other symptoms are heartburn, gastric distention, nausea, vomiting, belching, loss of appetite, diarrhea, and weight loss.

Serious complications other than the recurrence of the peptic ulcer are: excessive bleeding, perforation of the walls of the organs

involved, or obstruction, especially in the duodenum. If ulcers are neglected, increased bleeding can lead to anemia. An ulcerating lesion of the stomach raises the possibility of cancer, whereas malignant ulcers of the first part of the duodenum are almost unknown.

Dark brown particles like coffee grounds in vomitus indicate a bleeding ulcer. Black tarry stools also point to upper gastrointestinal bleeding. Each stool passed by a patient should be observed and its color noted. If there is a hint of bleeding, a rectal examination should be done and the glove inspected for a black stool. Blood pressure and pulse rate should be measured *while the patient is lying down, and repeated after the patient stands or sits for three minutes. A 15 mm drop in either systolic or diastolic blood pressure (lying down vs standing or sitting), or a 15-beat rise in the pulse rate (lying down vs standing or sitting), suggests a significant loss of blood.* With a 15% or greater loss of blood volume, there often is a drop in blood pressure and a rise in the pulse rate when the patient assumes the sitting position from recumbency.

The usual diagnostic aid for peptic ulcers is X-ray examination and fluoroscopic examination after the patient swallows barium sulfate. A careful history and use of a trial treatment with an antacid (see below) will establish the diagnosis well enough for shipboard treatment.

Treatment

Before initiating any medication, medical advice by radio should be obtained.

When perforation (see below) and hemorrhage (see p. V–32) have been ruled out, initial treatment aboard ship should be aimed at getting the ulcer to heal and preventing its recurrence. This should include use of an antacid to neutralize excessive digestive acid; medication to slow down secretion of gastric juice; other medication to reduce motility and muscular spasm in the stomach-duodenum areas; frequent small feedings to take gastric juice away from the ulcer; and provision of a restful atmosphere that will reduce emotional tension for the patient.

The patient should be put to bed in the acute phase when pain and apprehension are prominent. In uncomplicated cases several days of rest usually will control acute symptoms, and ambulation may begin as pain is controlled.

Although special diets were used in the past, there is no evidence they are beneficial in the treatment of peptic ulcer. The patient should be the best judge on what agrees with him. However, in the acute phase hourly feedings of skim milk (100 ml) are recommended. After pain subsides, bland foods, excluding whole milk and cream, can be added. Highly seasoned, greasy, and fried foods, and roughage should be avoided. Also, alcohol and coffee should be avoided.

When the patient is able to tolerate solid foods, to control hyperacidity frequent light meals are preferable to a few heavy daily meals; also occasional use of antacids after meals and between feedings are required. A combination of aluminum hydroxide gel and magnesium hydroxide or magnesium trisilicate suspension (antacid), administered in 10 to 15 ml doses every 30 to 60 minutes in the acute phase while awake and every two hours at night, will help to neutralize the gastric juice. Some antacids cause constipation; this may be relieved by giving occasional doses of magnesium hydroxide suspension. Aluminum hydroxide (combined with magnesium hydroxide or magnesium trisilicate) is also available in chewable tablet form. Although somewhat less effective than the suspension, this may be more convenient for the patient to use, particularly while working. One or two tablets should be chewed thoroughly, then swallowed, every two to four hours. To reduce the intestinal spasms and delay emptying of the stomach, belladonna tincture, 15 drops in a half glass of water may be given three or four times daily, preferably before each meal and at bedtime. This will help to relieve pain. (Before administering belladonna tincture, review the dosage and warning information on p. VI–11.)

Perforated Peptic Ulcers (Peritonitis)

Perforation is a very serious complication, so medical advice by radio should be requested immediately. When an ulcer eats its way through the walls of the stomach or duodenum, the partly digested contents pass into the abdominal cavity to cause peritonitis, which is an inflammation of the smooth membrane

that lines the abdominal cavity. The patient suffers sudden onset of intense pain in the abdomen. Usually bowel sounds will not be heard through a stethoscope placed on the abdominal wall. The abdomen will have a hard boardlike feeling to the touch. If pressure is applied gently to the abdomen, increased gradually, then abruptly released, there will be severe pain.

Treatment

Perforation of a peptic ulcer requires early surgery. Medical advice by radio should be obtained to arrange for evacuation of the patient to a medical facility and on use of the medication indicated below.

The patient should be placed in bed and kept warm. *Nothing* should be given by mouth. Morphine sulfate 10 mg intramuscularly may be given once for pain, and medical advice by radio will be needed for any additional doses. When possible, sodium chloride injection 0.9% or lactated Ringer's injection should be given intravenously at a rate of 1000 ml every eight hours; if shock is present, the rate should be increased.

Hemorrhage from Peptic Ulcer

A hemorrhaging peptic ulcer is a very serious complication. Medical advice by radio should be sought. The patient will feel faint, dizzy, weak, and will perspire profusely. There may be vomiting of blood or partly digested material (like coffee grounds) or black tarry stools may be passed. The pulse becomes weak and rapid. Thirst will develop. The patient may faint if he sits up or stands.

Treatment

The patient should be placed in bed and kept warm. Medical advice by radio should include arrangements for a prompt evacuation to a medical facility. Diazepam 5 mg may be given intramuscularly every 4 to 6 hours to control restlessness or anxiety. *Morphine sulfate generally should not be used because it may cause nausea or vomiting.* For severe pain, meperidine hydrochloride 50 mg should be given intramuscularly every four hours.

An infusion of sodium chloride injection 0.9% or lactated Ringer's injection, 1000 ml every 12 hours, may be given intravenously. This is mainly a safety precaution. If shock is present or impending, medical advice should be sought by radio for a possible increase in the rate of the infusion.

At least every hour the patient's pulse and blood pressure should be checked; then both should be rechecked with the patient sitting, if he is able. (See p. VI–15 for possible use of Dextran infusion.)

Skim milk, 100–200 ml may be given every hour. Liquid antacids may be used, as discussed previously, if the patient does not tolerate milk.

Obstruction from Peptic Ulcer

Obstruction of the outlet of the stomach may be partial or complete. It may be due to a spasm, a narrowing of the channel or aperture, or an inflammatory swelling about a pyloric or duodenal ulcer. Symptoms of obstruction include vomiting of foods eaten at previous meals and foul belching. Also in patients with thin abdominal walls, very active visible peristalsis may be seen travelling from the left upper quadrant of the abdomen to the navel area. If there is pronounced vomiting, there may be evidence of dehydration and increased alkalinity of the blood (alkalosis). If obstruction is suspected, medical advice by radio should be sought at once. Discussion should deal with possible evacuation to a hospital and management of the patient prior to and during evacuation.

Treatment

Before any medication is given *for suspected obstruction, medical advice by radio should be obtained.*

Give nothing by mouth. To control thirst, 1000 ml sodium chloride injection 0.9% should be given intravenously over a four to eight hour period. If necessary, follow this over eight hours with 1000 ml dextrose 5% and sodium chloride 0.45% injection intravenously. Medical advice by radio should be obtained on the administration of fluids pending evacuation. If there is complete obstruction, without intravenous fluids the patient can live for only a few days; with intravenous fluids, severe imbalances in body chemistry are likely within three days.

For severe pain, meperidine hydrochloride 75 mg should be given intramuscularly every four hours.

Vomiting

Vomiting is a symptom of most diseases of the digestive tract and may occur with other diseases.

The amount, forcefulness, frequency, and regularity of vomiting are clues to diagnosing its cause. Projectile (extremely forceful) vomiting without nausea suggests increased pressure within the skull due to brain injury. Also, the contents, color, and odor of the vomitus (material vomited) are clues in diagnosing why a person vomits. The vomitus may be clear and watery (gastric juice) or contain varying amounts of undigested or fully digested food. Blood may be present in the vomitus as streaks, bright red hemorrhage, or material resembling coffee grounds which suggests a slowly bleeding ulcer.

The blood from a hemorrhage in the respiratory tract may be swallowed and vomited. The odor of vomitus resembles feces when a bowel obstruction is present; or urine, in a serious kidney condition. Vomiting accompanied by fever and headache suggests the onset of a communicable disease. The patient should be isolated and observed carefully.

Treatment

The stomach should be rested when there is nausea and vomiting due to overeating or a "morning after" sick stomach.

For the vomiting from seasickness, stomach ulcer, systemic disease, or mechanical irritants (poisons), the treatment described in the text under those headings should be given. In general, rest, liquid diet, and warmth are indicated.

HEMORRHOIDS (Piles)

Hemorrhoids are enlarged veins surrounding the last inch or so of the rectum and its outlet, the anus. Not all hemorrhoids bleed, but bleeding occurs sooner or later in most untreated cases.

The enlarged veins may occur internally above the anal sphincter muscle or externally below the muscle. Although external hemorrhoids can be seen, internal hemorrhoids cannot be seen unless they are forced through the anus by straining.

Hemorrhoids may be painful or painless, and may be as large as an almond or even larger. Bleeding hemorrhoids may produce a few drops or a tablespoonful of blood. Internal protruding hemorrhoids may pose a very serious medical problem when they become engorged and inflamed. They may not be able to be pushed back easily into the rectum.

Common causes of hemorrhoids include constipation, straining at the stool, excessive use of cathartics, and heredity.

Treatment

A patient with hemorrhoids should be advised to consult a physician to make sure that other conditions are not present as an abscess, fissure, or possibly cancer.

To relieve pain in acute cases, warm compresses made by wringing out cloths with warm saline solution (one teaspoonful of sodium chloride in 1,000 ml of water) may be applied. The patient should sit in a tub of warm water for 20 to 30 minutes, every two to three hours for relief of pain and itching. After the baths he should return to bed rest. Hemorrhoidal suppositories may be inserted rectally, as directed on the package, to supply relief. Medical advice by radio should be obtained on whether local application of hydrocortisone ointment 1% may be prescribed.

To keep the stools soft, milk of magnesia should be administered once or twice daily.

HERNIA (Rupture)

A hernia is a protrusion of an organ or a part of the intestine through a wall of the cavity in which it is normally enclosed. Ordinarily, a hernia means the protrusion of the intestine through a weak place in the abdominal wall.

Treatment

The patient should be placed on his back with hips higher than the shoulders. The knees should be drawn up to relax the abdominal muscles. Then, by gentle manipulation with the fingers, a gradual effort should be made to work

the sac back into the abdomen. If a rupture has been protruding for a long time, adhesions may have formed and may prevent its reduction.

To reduce the more difficult hernias, morphine sulfate 10 mg should be given intramuscularly to relax the abdominal musculature and to relieve pain. About 45 minutes after giving this medication, an attempt should be made to reduce the hernia. Once the hernia has been reduced, the patient should be kept at bed rest on a liquid diet and given milk of magnesia to prevent constipation. Before repeating the morphine sulfate, medical advice by radio should be obtained.

When the rupture cannot be reduced, the protruding intestine may become compressed by adhesions or swelling to such a degree that its blood supply is shut off. This strangulated hernia is very serious. Symptoms are similar to those of obstruction of the bowel (see p. V–29). Gangrene of the bowel may cause general peritonitis and death within a few days unless properly treated. *Medical advice by radio should be obtained promptly.*

SEASICKNESS (Motion Sickness)

Motion sickness aboard ship is called seasickness. Fatigue, food, gastrointestinal disturbances, and other factors may increase the tendency to be seasick. There may be nausea, weakness, inability to concentrate, and giddiness. The patient may break out in a cold sweat and experience dizziness for a short period of time.

Treatment

The patient should be kept quiet and warm. Small amounts of dry food as crackers, dry bread, toast, or a piece of lean meat may settle his stomach. The attack often disappears after a few hours. The symptoms may be diminished by placing the patient in a reclining position with his head on a pillow and eyes focused on a fixed distant point.

Cracked ice may be given to help check the vomiting and to relieve thirst. An excess amount of liquids should be avoided. Phenobarbital 30 mg may be given by mouth to help the patient sleep and recover.

Seasickness may be avoided if cyclizine hydrochloride 50 mg is taken by mouth several hours before going aboard ship. It may be given every 4 to 5 hours as needed.

WORMS

Intestinal worms usually occur as a result of eating uncooked or undercooked infected meat or fish. Most intestinal worms are relatively harmless and rarely require emergency treatment. There is a specific treatment for most worms which may be postponed until port has been reached.

Tapeworm. This infection may be contracted by eating raw or inadequately cooked pork, beef, or fish. Although these three food sources will show several varieties of tapeworms that may differ from each other in some ways, each can cause digestive disturbances, abdominal pain, nervousness, sleeplessness, and loss of appetite. However, the symptoms often are absent or vague. The diagnosis can be confirmed when flat tapelike segments of the worm are found in the stool.

Roundworm. This infection may be contracted by drinking contaminated water or eating contaminated food. Acute intestinal symptoms with sharp pains and diarrhea may occur. However, no disturbing symptoms may occur and the patient may not be aware of the existence of the worms. Roundworms resemble earthworms and are about the size of an average lead pencil.

Pinworm. This infection may be contracted through contaminated food, bedding, and clothing. Usually, the symptoms are mild and consist of restlessness, irritability, sleeplessness, and loss of appetite. However, if the infection is severe, there may be itching around the anus, often during sleep.

A diagnosis may be obtained by applying a tongue blade (with cellophane tape wound around it so that the sticky side is on the outer surface) to the anal area before bathing or passing a stool. If pinworms are present, they will appear as short pieces of white thread.

Due to anal scratching, reinfection often occurs. The fingers may pick up worms or their eggs and carry them to the mouth. Therefore, hands should be washed frequently, particularly after going to the bathroom and after sleep.

Hookworm. In an infected area, the eggs are found in soil contaminated by human feces. The young worms that hatch from these eggs penetrate the skin of the feet, and rarely are swallowed. They cause a serious and disabling anemia, diarrhea, and retarded mental and physical development in children. The infection is confirmed when eggs of the worm are found in the stool.

Trichina. This infection called trichinosis is contracted by eating undercooked pork contaminated with the trichina worm. The worms burrow through the bowel wall and, eventually, reach the muscles where they form small cysts. Usually, the first symptom is swelling (edema) of the upper eyelids, followed by muscular soreness and pain, profuse sweating, thirst, chills, weakness, fever, and collapse. A mild infection, however, may go unrecognized.

- Kidney Stone Colic
- Nephritis
  Acute
  Chronic
- Urine Retention (Anuria)
- Urinary Tract Infection

Chapter V

Treatment of Diseases

Section E

GENITOURINARY DISEASES

KIDNEY STONE COLIC

STONES COMPOSED OF CRYSTALS of various salts and other solid particles may form in the kidneys. Some people seem to be susceptible to the formation of these stones. Once they are formed, the stones usually must be "passed out" from the kidney through the ureter and into the bladder, which is an extremely painful experience. The pain caused by the passage of kidney stones is called kidney stone colic.

The pain of kidney stone colic usually begins suddenly and is agonizing. It radiates from the back in the region of the lower ribs on one side, down through the abdomen, and frequently into the area of the genitalia and inner sides of the thigh. The extreme pain usually is accompanied by nausea and vomiting. The patient doubles up and writhes with each spasm. The pulse becomes weak and rapid. The patient may have a pale face and be covered with a cold and clammy sweat. The pain may subside in an hour or it may last several hours. Pain may come intermittently with temporary relief between seizures.

Usually there is no fever. If infection is present, fever and chills are prominent symptoms. Blood may be passed in the urine. There is almost a constant desire to urinate. However, the frequent attempts to urinate cause pain but produce little urine.

Usually there is little or no tenderness over the painful area, when pressure is exerted on the abdomen. Lack of tenderness and rigidity differentiates kidney stone colic from appendicitis and other infections in the abdomen. When the stone is discharged from the ureter into the bladder, the pain suddenly stops.

Treatment

The first objective for kidney stone colic is relief of pain. Changes in position may help pass the stone. A hot water bottle should be applied to the painful area.

Usually the pain is so acute that morphine sulfate is essential. If the pain persists, morphine sulfate 10 mg should be given intramuscularly and repeated in one and a half to two hours. If more than the two doses are needed, medical advice by radio should be obtained. The patient should be encouraged to drink a glassful of water every half hour or hour to increase the flow of urine. The urine

should be filtered through gauze to see if the stone or stones have been passed.

When the stone is passed, the patient should continue to drink fluids freely. The diet should be liquid or soft for a day or two, or longer if the patient continues to feel ill. If chills and fever occur, indicating infection of the genitourinary tract, sulfisoxazole may be indicated (see Urinary Tract Infection, p. V–38). Medical advice by radio should be obtained. The patient should be advised to see a doctor at the next port. The stone, if passed, should be given to the doctor.

NEPHRITIS
(Bright's Disease, Glomerulonephritis)

This inflammation or degeneration of the kidneys may occur in acute or chronic forms.

Acute Nephritis

The acute inflammation interferes with the removal of waste products from the bloodstream. A marked decrease in the amount of urine passed, swelling (edema) of the ankles, and a pale pasty skin may occur suddenly. Also the usual symptoms of acute diseases may occur as malaise, pain in the small of the back, headache, fever (usually slight), shortness of breath, nausea, and vomiting.

With reasonable care, acute nephritis may clear up in a few weeks to a few months. However, the disease always is serious. Aggravated cases may terminate fatally in a relatively short time, or they may go on to chronic nephritis despite the best treatment.

Prolonged exposure to cold temperatures (without proper clothing or other protection) or overindulgence in alcohol also may be associated with kidney damage. Other common causes of kidney damage and acute nephritis are: toxins from such focal infections as abscessed teeth, pyorrhea, and infection of the prostate gland; toxins and other products from acute infectious diseases as syphilis, measles, typhus, tonsillitis, mumps, meningitis, typhoid fever, and gastro-intestinal diseases; chemical poisoning as mercury, or poisonous plants as mushrooms; physical injury to the kidney, as from a direct blow or fall; or extensive burns that destroy large areas of the skin, throwing an extra heavy excretory burden on the kidneys.

Treatment

There is no specific treatment for Bright's disease. The patient should be kept at rest in bed. The sickroom should be comfortably warm, well-ventilated, and without drafts.

The diet should be soft and easily digested and the patient should be careful not to overeat. Both salt intake and water intake should be kept low, especially if there is swelling of the ankles. *In most diseases with fever the patient is urged to drink a lot of water, but in acute nephritis it should be discouraged.*

If the patient is restless, cannot sleep, or is bothered by headache or other symptoms, phenobarbital 30 mg may be given by mouth once or twice a day. For pain in the back, a hot water bag often gives much relief.

In acute nephritis that follows an infection, especially by a streptococcus organism, penicillin G, procaine, sterile suspension, 600,000 units should be given intramuscularly each day for 10 days. Oral erythromycin 250 mg four times daily for ten days may be substituted in penicillin-sensitive individuals.

The patient should be watched for symptoms of systemic poisoning (uremia) which include increased headaches, drowsiness, twitching of the muscles, and convulsions associated with marked decrease in the amount of urine passed. A patient with uremia usually is critically ill. Medical advice by radio should be obtained.

Chronic Nephritis

The onset of chronic nephritis usually is slow and without obvious symptoms except when it follows acute nephritis. When symptoms occur, they include swelling of the ankles and perhaps other parts of the body, puffiness around the eyes, pale pasty skin indicating anemia, chronic indigestion, malaise, headache, irritability, sleeplessness, nausea, vomiting, and either a marked increase or a marked decrease in the amount of urine. Also, there may be signs of a failing heart, high blood pressure, cramps in the muscles (especially of the legs), attacks of shortness of breath, and diarrhea.

Chronic nephritis may be a rapidly crippling disease; or the patient may be able to live a useful life for many years without much

disability. A seaman with chronic nephritis should be sure to obtain competent medical advice before returning to sea.

Treatment

The emergency treatment for chronic nephritis is symptomatic and follows the same general plan outlined above for acute nephritis. An accurate measure of the urine over 24-hour periods will assist the doctor in giving medical advice by radio. Medical assistance should be sought early.

Patients with chronic nephritis must lead a moderate, carefully regulated life. All excesses should be avoided especially in the use of alcohol and in food, work, and exposure to rough weather. Warm clothing should be worn to maintain comfort at all times.

URINE RETENTION (Anuria)

The patient with acute retention of urine complains of severe pain in the lower part of the abdomen. Although he has an urgent desire to urinate, he cannot. In cases of prostatic enlargement, the retention may be chronic and patients may suffer from constant dribbling away of the urine, a condition known as retention with overflow. The distended bladder may be visible as a rounded swelling rising out of the pelvis in the middle line.

Inability to pass urine may be due to congestion at the base of the bladder; stricture of the urethra, usually associated with a history of previous gonorrhea; paralysis of the muscles of the bladder in an unconscious patient with a brain or spinal injury; a stone lodged in the urethra; conditions of the prostate gland that constrict the neck of the bladder and the urethra; and alcoholic excesses.

Treatment

Preferably the bladder should be emptied by natural means without the aid of a catheter. Passing a catheter involves introducing an instrument into a urinary tract that is already inflamed and prone to infection. Even if the retention is relieved, the bladder may become infected and cystitis result. For this reason, effort should be made to help the patient to urinate normally. Reassurance is an important part of treatment. Pentobarbital sodium 100 mg may be given orally once, if the patient is highly apprehensive. It may be helpful to have the patient sit in a warm bath for a half hour or take a warm shower. Such relaxation may relieve the spasm, allowing the patient to urinate. If this procedure fails, a phosphate solution enema should be given. When the patient's bowels move, urine also may pass. If this fails, a catheter will need to be passed. Medical advice by radio should confirm the need for catheterization. (See p. VII–23.)

URINARY TRACT INFECTION

Chills and fever, pain and soreness over one or both kidneys, and frequent, painful or burning urination may indicate an infection of the urinary system. (See Kidney Stone Colic, p. V–36, Venereal Disease, p. V–112.)

Treatment

The treatment for infection of the urinary tract consists of bed rest, liberal fluids by mouth (water, fruit juices), no alcohol or coffee, a liquid or nonirritating soft diet, and a course of sulfisoxazole. Sulfisoxazole 3 g (six 500 mg tablets) should be given as the first dose with a full glass of water. Follow this with 1 g (two 500 mg tablets) with a full glass of water every six hours, for a period not to exceed five days without medical advice by radio.

- Anthrax
- Chickenpox
- Cholera
- Dengue Fever
- Diphtheria
- Hepatitis, Viral
  Infectious Hepatitis
  Serum Hepatitis
- Malaria
- Measles (Rubeola)
- Measles, German (Rubella)
- Mononucleosis, Infectious
- Mumps
- Plague
- Poliomyelitis
- Rabies (Hydrophobia)
- Relapsing Fever
- Rheumatic Fever
- Scarlet Fever
- Smallpox (Variola)
- Tetanus (Lockjaw)
- Typhoid Fever
- Typhus Fever
- Undulant Fever
- Whooping Cough
- Yaws
- Yellow Fever

Chapter V

Treatment of Diseases

Section F

INFECTIOUS DISEASES

ANTHRAX

Incubation Period: Within 7 days (usually 2 to 5 days).

Isolation Period: Until lesions are free of anthrax bacilli.

ANTHRAX IS AN ACUTE, infectious bacterial disease that is caused by *Bacillus anthracis.* It is rare in the United States and most western countries. Primarily a disease of sheep, cattle, and horses, it occurs most commonly among wool sorters, felt makers, tanners, and others who work with animals or their products. If cattle or hides are shipped by sea, exposure to anthrax is a possibility.

When anthrax appears as a skin disease, it may look like an ordinary boil or carbuncle. However, the surrounding skin may become swollen and break down. There may be severe systemic symptoms such as fever or prostration.

It is difficult to distinguish anthrax from an ordinary boil. Someone with a severe skin reaction surrounding a boil plus other bodily symptoms should be treated with antibiotics.

Treatment

If the patient is not allergic to the penicillins, penicillin G, procaine, sterile suspension, 600,000 units should be given intramuscularly every twelve hours until oral medication can be retained. Then penicillin V potassium 250 mg should be given by mouth every six hours, either one hour before or two hours after meals. The treatment should continue until all signs and symptoms disappear or until the patient has seen a physician. If the patient is allergic to the penicillins, erythromycin in the same dosage and frequency may be used instead of penicillin V potassium. (See Boils, p. V–101, and Carbuncles, p. V–102.) *Medical advice by radio should be obtained.*

CHICKENPOX (Varicella)

Incubation Period: 14 to 21 days (usually 13 to 17 days).

Isolation Period: Until scabs are no longer present.

Chickenpox is a highly contagious viral disease that produces a typical rash. The disease begins with a running nose, tearing eyes, slight fever about 101°F (38.3°C), occasional sore throat, loss of appetite, decreased energy, and restlessness. Within 24 hours of these symptoms, an eruption appears mostly on the trunk and face, and occasionally on the arms and legs. The skin lesions are vesicles (clear fluid-filled blisters on a slightly raised red base). These blisters frequently become pus-filled and crust in a few days. Finally as healing occurs, the crusts or scabs fall off.

Lesions of chickenpox typically appear in crops. Lesions of different ages are seen at the same time in a given area of the body surface. *This helps to distinguish chickenpox from smallpox.* In smallpox, the lesions in a given area of the body surface are of the same age and stage of development. They usually begin and are most extensive on the face and/or extremities.

The disease is communicable from a few days before the rash appears until all vesicles have crusted (five to 10 days). In adults, there may be serious complications of chickenpox, including viral pneumonia and meningoencephalitis.

Treatment

There is no specific therapy. Patients should be kept in bed and isolated from the rest of the crew. For fever, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency. Diet and liquids should be given as tolerated. For persistent itching, diphenhydramine hydrochloride 50 mg should be given by mouth four times daily. The patient's fingernails should be scrubbed daily to prevent bacterial contamination of the lesions by scratching. *In all cases of suspected chickenpox, medical advice by radio should be obtained.*

CHOLERA (Asiatic or Epidemic)

Incubation Period: A few hours to 5 days (usually 2 to 3 days).

Isolation Period: Until declared free from infection by a physician.

The term cholera sometimes is used to cover any acute disease that has copious discharges of watery material from the bowels, vomiting, and prostration. Usually, the term refers to Asiatic (or epidemic) cholera, which is a bacterial disease caused by the organism *Vibrio cholerae.*

The disease is transmitted from one person to another by discharges from the intestinal tract. It is extremely serious and highly infectious. Cholera exists throughout the year in many areas of Asia. In North America, it exists only when introduced from abroad.

With proper precautions, merchant vessels should be able to proceed in and out of cholera ports without picking up the infection either in the intestinal tracts of crew members, or in fresh water, fresh vegetables, and other articles taken on board.

Cholera is spread (1) by food or water that is polluted with cholera germs; (2) by contact with articles soiled with the discharges of patients or carriers (persons who harbor the germs but have no apparent disease); and (3) by flies or vermin that have contacted infectious material.

The crews of ships sailing for a port where cholera is known to be present should be protected against it by immunization. If crew members go ashore in a cholera port, it is preferable that they should not eat or drink anything while ashore.

Cholera is an official quarantinable disease. Regulations require the Master, as soon as practicable, to notify local health authorities at the next port of call, station, or stop. The Master shall take such measures as the local health authorities direct to prevent the spread of disease. (See Appendix B.)

The local health authorities (port, medical and American Consular) should be consulted when food, especially fresh vegetables, and fresh water are taken aboard anywhere in a cholera area. At ports where cholera is known

to exist, food must be cooked and protected from flies. If there is the slightest question about the safety of water for drinking, washing, and cooking, it should be chlorinated aboard ship. (See p. XI–6.)

The symptoms of cholera usually begin about five days after the germs have entered the body (incubation period). Diarrhea may be the only symptom in mild cases. Most cases, however, are marked by violent diarrhea, vomiting, abdominal cramps, and prostration or collapse. Typical stools are almost clear water with shreds of mucus, which give them the appearance of rice water. Usually, there is intense thirst. Drinking water or other liquids often increases the tendency to vomit. There may or may not be fever and the pulse is weak.

Treatment

The patient with cholera should be kept in bed under strict isolation technique. If possible, the medical attendant charged with the care of the sick patient should have been inoculated against cholera within the past six months. *Medical advice on treatment should be obtained promptly by radio.*

The patient should be kept comfortably warm (not overheated) with blankets and hot water bottles. To control diarrhea, tablets of diphenoxylate hydrochloride 2.5 mg with atropine sulfate should be administered by mouth, two tablets, three or four times daily until the symptoms are controlled. Then the dosage should be reduced as required. Small amounts of cracked ice taken by mouth may help to check vomiting. Hot applications may relieve abdominal pain. If severe abdominal pain continues, morphine sulfate 10 mg may be given once only by intramuscular injection, *if recommended by radio medical advice.*

If the patient is severely dehydrated, intravenous sodium chloride 0.9% solution may prove lifesaving. *As a general rule, the amount of fluids given intravenously should equal that lost each day through diarrhea.*

When port is reached, stools should be examined for cholera germs. Usually, the entire crew should have stool examinations.

Food should not be given during the first few days of a severe case of cholera. Small sips of fluids should be forced, as long as they are tolerated; larger amounts may induce vomiting. If cold liquids are more nauseating than hot liquids, then hot tea, hot black coffee, or hot water should be tried. As the patient shows signs of recovery after the initial severe stages, he may be given soup, boiled milk, cooked cereal, and other bland easily digested liquid or soft foods, if he is able to tolerate them.

Stools and vomited matter should be flushed into the ship's sewage treatment system or retention tank. All articles used by the patient, as dishes, other eating utensils, bedpans, urinals, bed linens, and towels must be soaked in a disinfecting solution or boiled. (See p. VII–16.) All attendants must wear gowns while in the sickroom and the hands must be washed and rinsed in a disinfectant solution (see p. VII–19) each time after contact with the patient. The medical attendant must not eat or drink anything while in the patient's room.

The patient's room and his personal effects should be disinfected following the illness. Also any part of the ship that may have been contaminated through contact with the patient, his body excretions, clothing, or other personal effects should be disinfected very carefully. (See p. VII–19.)

DENGUE FEVER (Breakbone Fever)

Incubation Period: 3 to 15 days (usually 5 to 6 days).

Isolation Period: In a screened room at least 5 days after onset.

Dengue fever is an acute viral disease of tropical and subtropical climates. The disease is transmitted by the bite of infective *Aedes aegypti* mosquitoes, the same type that spreads yellow fever; *Aedes albopictus;* and one of the *Aedes scutellaris* complex. It is characterized by the sudden onset of high fever 102°F to 105°F (38.8°C to 40.5°C), severe muscle aches and pains, and a blotchy red rash. Many patients develop a second rise in temperature 12 to 72 hours after the initial rise. The disease lasts from three to 12 days.

Treatment

There is no specific treatment for dengue fever. Complete bed rest and good nursing care are important. Fluids should be forced. The temperature elevation and pain usually can be controlled effectively with aspirin and/or codeine sulfate.

For severe pain, aspirin 600 mg with codeine sulfate 30 mg should be given by mouth every four hours as needed. Aspirin alone may control the pain after four or five doses. If additional codeine sulfate appears to be needed after four or five doses, medical advice by radio should be obtained. If aspirin is not well tolerated by the patient, acetaminophen 600 mg, with or without codeine sulfate, may be effective at the same frequency.

Differentiating this disease from other viral illnesses is difficult without specific blood tests.

Control

Dengue fever usually occurs in epidemics. Control of the disease is based on preventing carrier mosquitoes from biting both infected and noninfected persons. Patients should be kept under mosquito netting until the second fever has abated (at least five or six days after onset).

DIPHTHERIA

Incubation Period: 2 to 5 days.

Isolation Period: 14 days after onset.

Diphtheria is a serious acute infectious disease that is caused by the *Corynebacterium diphtheriae* bacillus. The bacteria grow in the throat, nose or windpipe, and give off a toxin (poison) that causes an illness of the entire body.

Diphtheria once was a very common cause of sickness and death among infants and children, but it is now a rare disease in the United States. It may be prevented by diphtheria toxoid injection with booster doses every ten years. Most crew members have been inoculated as children. Before signing on, a check should be made to assure that booster doses have been maintained.

The early symptoms of diphtheria are like those in most communicable diseases: overall body discomfort, restlessness, weakness, loss of appetite, headache, chilliness, and constipation. Soon there is a sore throat or sore mouth with increasing fever to 103°F (39.4°C), prostration, vomiting, and convulsions in some cases. In the laryngeal (windpipe) type of the disease, dirty gray patches of an adherent membrane form in the back of the nose and throat, over the tonsils and in the windpipe itself. These patches resemble dead skin. If attempts are made to brush off patches with a cotton swab, they come away with difficulty and leave tiny bleeding points in the uncovered mucous membrane. There may be a bloody nasal discharge and a "croupy" cough.

The most serious complications include (1) suffocation, due to the mechanical blocking of the windpipe by the diphtheritic membrane; and (2) an overwhelming systemic poisoning due to the toxin. Because of a special affinity for certain nerves, the toxin may produce paralysis of the throat, eyes, or extremities; or death from heart failure.

Making the diagnosis of diphtheria at sea is difficult. Anyone with a severe sore throat, together with the severe systemic symptoms mentioned earlier, should be considered to have diphtheria until examined by a physician. *Medical advice by radio should be obtained.*

Treatment

If diphtheria is suspected, the patient should be placed on absolute bed rest and in strict isolation. Gargles of warm salt water (one teaspoonful of table salt to one pint of water) may help to ease pain in the throat.

Antibiotics are considered to have little effect on the clinical course of diphtheria. However, a ten day course of penicillin is indicated *if the patient is not allergic to it.* It is believed that penicillin cuts down on the toxin produced, is a useful treatment for associated infections as beta-hemolytic streptococcal pharyngitis, and hastens the clearing of the carrier state in the patient. Penicillin V potassium 500 mg should be given by mouth as an initial dose followed by 500 mg every six hours. If the patient is unable to retain medication taken orally, penicillin G, procaine, sterile suspension 600,000 units should be given by intramuscular injection every 12 hours, until the patient is

able to take penicillin V potassium by mouth.

The patient should be evacuated by air to the nearest port as soon as possible. The entire crew should report to health authorities at the next port.

HEPATITIS, VIRAL

Viral hepatitis is an acute infection that destroys liver cells. There are two forms of the disease presumed to be caused by different viral agents that produce more or less identical symptoms. *Infectious hepatitis* whose virus has a short incubation period often can be prevented by injections of immune serum globulin. *Serum hepatitis* has a longer incubation period and immune serum globulin injections will *not* protect against the disease. Cases of either disease cannot be distinguished on clinical grounds only because jaundice is the dominant physical finding; and laboratory tests of liver function show similar abnormalities. However, a study of the patient and his environment will help to differentiate one disease from the other.

A diagnosis of *infectious hepatitis* can be made if (1) the patient's history shows contact with another case of jaundice within a 15 to 50-day incubation period; (2) the patient belonged to a defined neighborhood as a housing project or a ship where a localized epidemic occurred that was related to a person-to-person spread; or (3) there was a common exposure to contaminated water, food, or raw shellfish. In contrast, a diagnosis of *serum hepatitis* can be made if the history shows inoculation with blood or blood products, or exposure to contaminated hypodermic syringes and needles within a period of 50 to 180 days.

Infectious Hepatitis *(Virus A Hepatitis, Epidemic Hepatitis, Epidemic Jaundice)*

Incubation Period: 10 to 50 days; commonly about 30 to 35 days.

Isolation Period: First 14 days of illness and at least 7 days after jaundice shows up.

Infectious hepatitis in some patients may be so mild that a correct diagnosis never is made. Most recognized cases last about two or three weeks, followed by a prolonged convalescence. About 10 percent suffer permanent damage to the liver. About one percent may die during the acute stage or after a year or two of chronic illness due to liver damage. Severity varies from a mild illness of one or two weeks, to a very disabling attack that demands several months of convalescence. Generally severity increases with age, but usually there is complete recovery with no lasting ill effects or recurrences.

Early detection and diagnosis of infectious hepatitis is important. There are no specific diagnostic measures. Differential diagnosis depends on clinical and epidemiological evidence that will exclude other causes of jaundice coupled with fever.

The disease has an abrupt onset with a fever of 100°F (37.7°C), severe headache, loss of appetite, vomiting, and lethargy. The virus is carried to the liver where it multiplies rapidly with widespread destruction of cells. The liver becomes swollen and tender with aching in the center and upper right abdominal areas, plus acute pain from pressure just below the ribs. At this stage the patient may think he has a touch of intestinal flu that can be ignored. On the contrary, the patient has a very infectious acute illness, and in three to seven days after onset he shows a yellowish (jaundiced) color in the eyes and skin due to excess liver bile in the blood. The color of the urine becomes dark brown because of excess bile in the kidneys, the stools show a pale grayish-white color, and the breath has a foul sweetish odor.

In some cases the onset resembles an acute attack of influenza, when the patient feels ill all over the body with severe abdominal pain, prostration, and a temperature that reaches 105°F (40.5°C). The illness will last about three or four weeks, after which there will be a slow convalescence during which the patient is listless, depressed, and shows little interest in food.

Treatment

Medical advice by radio should be obtained. Because infectious hepatitis may be transmitted through the stool and urine, all excretions must be disinfected. The patient must be isolated and instructed to apply good hygiene procedures after using the bathroom. The virus is excreted in feces and urine 14 to 21 days

before the appearance of jaundice and 7 days thereafter. The patient's blood also is infectious. There is no specific treatment.

Enforced bed rest and strict adherence to a low-fat, high-carbohydrate diet no longer are considered essential. Diet and activity should be adjusted to the clinical condition of the patient. He should be given plenty of fluids. The very ill patient will not want to be out of bed and may have severe nausea and vomiting that will require fluid supplements of dextrose 5% and sodium chloride 0.45% injection administered intravenously. Headache and sleeplessness may be relieved by 30 mg of codeine sulfate by mouth. For additional doses and their frequency, *medical advice by radio should be obtained.* A mild laxative such as milk of magnesia may be given. A hot water bottle applied to the sensitive liver area may provide relief. Alcoholic drinks should not be used by the patient during the course of the disease and for many months after recovery.

When a member of the crew is known to have infectious hepatitis, others who have not had the disease should receive *immune human serum globulin* injections as soon as possible. Medical advice by radio should be sought on whether this medication can be made available at the next port of call or by airdrop. Those who have contacted the infection will receive short-term protection from the globulin for a period of six to eight weeks. However, its effectiveness depends on how soon after exposure the injection was administered. Disposable inoculation equipment should be used whenever possible.

Serum Hepatitis *(Virus B Hepatitis, Homologous Serum Jaundice)*

Incubation Period: 50 to 180 days, usually 80 to 100 days. In post transfusion hepatitis it may range from 10 to more than 180 days.

Isolation Period: Same as that for infectious hepatitis. (See above.)

Unlike the virus of infectious hepatitis, the serum hepatitis virus is not transmitted through contaminated water, food, or close personal contact. Instead it usually is spread from person to person only by the use of contaminated hypodermic needles, medical or surgical instruments, or by the transfusion of blood or blood products taken from a donor who is a carrier of the virus. Cases have been traced to tattoo parlors.

Serum hepatitis is practically identical with infectious hepatitis except its incubation period is longer. Symptoms may not occur for six months after inoculation. Its onset develops quickly with vague abdominal discomfort, loss of appetite, nausea and vomiting often leading to jaundice. Severity varies widely from inapparent cases detected only by liver function tests to those with extremely rapid development with liver cell destruction that causes death.

Many cases of serum hepatitis have been found among drug addicts, teenagers, and young adults who share contaminated hypodermic equipment when they experiment with drugs. Use of illicit drugs and narcotics is extremely perilous and few users are aware of the additional threat of death from serum hepatitis because inadequately sterilized needles and syringes were used. *Those who recover from the disease can become apparently healthy carriers who carry the live virus in their blood for years.*

Treatment

Medical advice should be obtained by radio. Because the disease is infectious, the patient must be isolated.

Disposable inoculation equipment should be used whenever possible. If not available, springes and needles that were used should be destroyed and discarded after being autoclaved for 30 minutes.

MALARIA
(Bilious Fever, Swamp Fever, Marsh Fever, Ague)

Incubation Period: 10 to 30 days.

Isolation Period: None.

One of the most common and important of all the infectious diseases, malarial fever is both an acute and a chronic disease. There is destruction of red blood cells and interference with the normal functioning of vital body processes. Chronic malaria may last for years.

The symptoms may interfere greatly with the patient's well-being and with his ability to function normally, or they may not be severe enough to keep the patient in bed all or even a part of the time.

The geographic distribution of malaria depends on the species of mosquito that transmits it. Females of the *Anopheles* group of mosquitoes act as intermediary hosts for the *Plasmodium* protozoal parasites that cause malaria. These live part of their life in the mosquito and part in the blood of the infected person. When a female *Anopheles* mosquito bites a person who has malaria, she sucks in some of these parasites with the blood on which she is feeding. The parasites go through a stage of development in the body of the mosquito. It takes at least two weeks before the mosquito can pass the parasites to another person. When the young parasites are ready to start the part of their life cycle that takes place in a human host, they enter the mosquito's saliva and are injected into the blood of any person bitten by the mosquito. In the blood of the new victim, the parasites go through another stage of development which takes about 10 to 14 days. Then the parasites are ready to cause the *chills and fever typical of malaria.* These attacks occur every day, every other day, or every third day, depending upon the type of infecting parasite.

Malaria may occur as a relatively mild or as a severe and fatal disease. In the *mild type,* the temperature rises above normal and falls below normal with each attack. In the *severe type,* it rises higher above the normal but does not drop back to normal before the next attack. To distinguish between these two types, the temperature should be taken at least every four hours for several days.

The typical attack of malaria has *three stages.* The *first or cold stage,* usually is ushered in by a preliminary period of malaise (feeling ill and tired), chilliness, headache, aching in the bones, loss of appetite, nausea, and possibly vomiting. Sometimes the chills begin without any of these warning symptoms. In the cold stage, the patient feels cold, shakes all over, his teeth chatter, and he has accompanying pains in the head and body. He yawns, usually is nauseated, may vomit, and the pulse is rapid and feeble. Despite his chilliness, the temperature will be above normal, sometimes as high as 104°F or 105°F (40°C to 45.5°C). The patient will get into bed and pile covers over himself, but he will not get warm. This stage lasts for a half hour or longer.

In the *second or hot stage,* the patient loses the chilliness, becomes uncomfortably warm, and throws off the bedclothing. The skin is hot and dry, the temperature remains elevated, the face is flushed, the pulse is rapid and full, and respirations are quickened. The patient becomes very thirsty, headache increases (often becoming agonizing), and frequently there is vomiting. This stage lasts from one to four hours or longer.

Then the fever begins to fall. The patient enters the *third or sweating stage.* He begins to perspire freely, first on the face and then over the entire body. Perspiration may be so profuse that the sheets are literally soaked. A feeling of comfort takes the place of the acute misery of the first and second stages. Headaches and other symptoms disappear and he may fall into a deep sleep. Afterwards, he feels fairly well until the next attack.

The patient should be watched for the following complications: (a) excessively high temperature 108°F to 110°F (42.2°C to 43.3°C); (b) coma, or delirium followed by coma; (c) heart failure following sudden exertion; and (d) severe distress in the stomach region, a tender abdomen, incessant vomiting, and collapse.

Some forms of malaria follow an unusual pattern. One form simulates heatstroke, acute mania, or an acute alcoholic mental disturbance. Headache, mental excitement, and/or prostration are prominent. All symptoms are relieved by antimalarial treatment. In another form, there is dimness and clouding of vision with headaches of long duration, usually over the temporal or frontal areas.

Treatment

Chloroquine phosphate remains the drug of choice for terminating acute attacks caused by the parasites *Plasmodium vivax, P. malariae,* or *P. ovale.* 1000 mg (four 250 mg tablets) of chloroquine phosphate should be given at once, followed by 500 mg six hours later; then 500 mg once daily for the next two days. Chloroquine

phosphate ends acute attacks of malaria fairly quickly and may be given for *P. falciparum* strains that are not resistant. If some parasites develop resistance to a drug, then another drug must be tried.

For patients with a chloroquine-resistant *P. falciparum* infection, or any patient developing clinical malaria while on chloroquine prophylaxis, 600 mg (two 300 mg tablets or capsules) of quinine sulfate should be administered orally every eight hours for 14 days. On each of the first three days of treatment, 50 mg of pyrimethamine should be administered concurrently with the quinine sulfate.

Before treating any malaria patient, medical advice by radio should be obtained.

Prevention

The USPHS recommends the use of an additional medication, "Fansidar," to be administered along with the Chloroquine now being used when entering countries as listed.

Malaria prevention should therefore be carried out as follows:

Chloroquine (Aralen) tablets and Fansidar (sulfadoxine/pyrimethamine) tablets are used as the medicines available. Few side effects are expected.

However, individuals allergic (sensitive) to sulfa drugs should *not* take Fansidar, and should rely on Chloroquine prevention alone. In addition to taking the prescribed medication, exposure to mosquitoes should be avoided (use insect repellent). Both Chloroquine and Fansidar must be taken as prescribed to avoid development of resistance in malaria parasites. Malaria may produce a very dangerous illness which can lead to organ damage or even death. Its prevention is especially important on our vessels traveling through malaria zones.

Since these medicines act as suppressive agents a person who becomes infected may experience attacks of malaria after stopping the medication. If a seafarer has fever or flu-like symptoms after leaving a malaria area this possibility must be considered. (The patient who plans to give blood within the next three years should also mention potential malaria exposure at the time of donation.)

DOSAGE: 2 tablets (0.5 gm) Chloroquine and one tablet of Fansidar are given once a week beginning two weeks before entering the malaria area, during the time there, and for 6 weeks after leaving the area. Take the medicines on the same day of the week that it was started, and take them following a meal.

In order to ensure maximal health protection crew members are asked to sign receipts for or rejection of the medication.

List of countries with Chloroquine resistant malaria where Chloroquine and Fasidar must be taken:

Burma
China—Hainan Island, Guangxi, Yunnan
Colombia (except Bogota)
Comoros
Indonesia (except Jakarta, Surabaya)—Borneo, Bali, Java, New Guinea, Sumatra
Kampuchea
Kenya
Lao People's Democratic Republic
Madagascar
Panama—malarious areas east of Canal Zone (Canal Zone excluded)
Papua New Guinea
Philippines—Luzon, Basilan, Mindoro, Palawan Islands, Sulu Archipelago
Solomon Islands
Surinam
Tanzania
Thailand
Uganda
Venezuela
Vietnam

In other malaria areas use Chloroquine 2 tablets only (without Fansidar).

MEASLES (Rubeola)

Incubation Period: 8 to 13 days.

Isolation Period: From diagnosis until 7 days after the rash appears.

Measles, an acute viral disease, is the most contagious of all communicable diseases. The virus is found in secretions of the nose, mouth, throat, and lungs of infected persons. Most adults in childhood have had the disease, and one attack provides lifelong immunity. However, measles must be feared because of complications, mainly to the eyes, kidneys, and brain; and secondary infections as bronchitis,

bronchial pneumonia, and inflammation of the middle ear.

Symptoms begin about ten days after exposure. The onset is sudden with a general overall feeling of not being well, sneezing, runny nose, headache, sore throat, cough, soreness of the eyes, dislike of bright light, and a rise in temperature to about 102°F (38.8°C). Symptoms are apt to be severe with copious tears, swollen lids, and bloodshot eyes. During this stage the disease is most contagious. On the second and third day of the disease the symptoms become more marked and the face gets a puffy look. On the inner side of the cheeks, near the junction of the upper and lower jaws, where the back teeth meet, tiny whitish spots (Koplik's spots) may be seen. These spots confirm the diagnosis of measles. The patient now should be isolated, if not already done. After three to five days of the disease the temperature rises to about 104°F (40°C) and the typical measles rash appears. The rash of a reddish hue with slightly raised irregular blotch patches starts on the forehead and behind the ears, and gradually spreads to the face, body, and limbs. The rash remains about four or five days, then fades from the body regions in the same sequence that it appeared. This is followed by a fine peeling of the skin. As the rash disappears, the temperature drops to normal.

Because of its extremely infectious nature, measles usually cannot be kept from spreading to crewmen who have not had it. However, a measles patient should be isolated to protect him from exposure to germs of other communicable diseases, as the common cold or pneumonia, that are carried by many apparently healthy individuals. Secondary respiratory infections are so dangerous to a measles patient that masks should be worn by the patient and everyone attending to his needs.

Treatment

Treatment is symptomatic as there is no specific medicine that will cure measles. *Medical advice by radio should be obtained.*

The patient should be cared for in strict isolation (see p. VII–19) and in a well-ventilated cabin screened from bright light, comfortably warm, and without drafts. Close attention should be paid to cleanliness of the mouth and teeth. To protect the eyes, the patient should wear dark colored glasses. The room should be darkened but not completely blacked out. The eyelids and margins should be cleansed several times a day with cotton balls moistened with sterile isotonic eye irrigating solution.

If the rash causes irritation or itching, calamine lotion should be applied freely three times a day. If the patient develops a troublesome cough, 5 ml or one teaspoonful of dextromethorphan hydrobromide syrup 15 mg/5 ml, with glyceryl guaiacolate should be given every four to six hours, as needed. For headache, aspirin 600 mg should be given by mouth every three to four hours. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency.

The patient should be kept in bed at all times. Exercise, even such slight exertion as going to the head while fever or malaise is present, may encourage kidney and other complications. The patient should drink plenty of fluids and the diet should be liquid or soft foods.

During convalescence one should watch for complications and secondary infections and try to avoid them. The patient should not engage in anything but the lightest tasks for two or three weeks after the attack. *At the first convenient port, he should be referred to a physician for a medical checkup.* (See German Measles, below.)

MEASLES, GERMAN (Rubella)

Incubation Period: 14 to 21 days (usually 18 days).

Isolation Period: 7 days after temperature returns to normal.

German Measles usually is a mild, acute, highly infectious viral disease, sometimes called three-day measles. If a woman develops German measles during the early months of pregnancy, there is a great risk of a spontaneous abortion, stillbirth, or the child may be born with birth defects. The disease is common among children and young adults.

The first sign usually is a rose-pink rash that does not appear until the fourth day, which

may resemble measles or scarlet fever (see p. 187). However, there is no sore throat or pallor around the mouth as found in scarlet fever.

The rash of German Measles may be accompanied or followed by a general feeling of bodily discomfort, headache, symptoms of a common cold, eye soreness, stiffness of joints, tender swollen glands at the sides and back of the neck, and a slight fever about 102°F (38.8°C). The rash usually lasts about three days and the temperature may go to 104°F (40°C). The temperature will drop to normal as the rash fades.

Treatment

There is no specific therapy for German Measles. Treatment should be symptomatic, the same as for measles (Rubeola). Medical advice by radio should be obtained.

MONONUCLEOSIS, INFECTIOUS

Incubation Period: 14 to 42 days.
Isolation Period: Until a physician states the patient is free of infection.

The cause of infectious mononucleosis has not been definitely proven, although a herpes-like virus is suspected. It occurs among children and young adults and is a diagnostic challenge because of the wide variety of symptoms shown by its victims. It may occur as sporadic cases or localized epidemics and is common among college students and hospital personnel. Because it is spread by close upper respiratory contact, it has been called the "kissing disease."

Almost every organ of the body is involved. The first symptoms can mimic those of an upper respiratory infection: with fever, chills, headache, cough, and general malaise. The patient may have vague complaints of fatigue, loss of appetite, sleeplessness, and a sore throat. After about three days, swollen lymph glands may appear on the sides and back of the neck, in the armpits and groin. A reddish skin rash like that of typhoid fever or eruptions like German Measles occur. The spleen may enlarge considerably. Liver function is impaired and the skin and whites of the eyes become jaundiced (yellow-colored).

It may be necessary to obtain laboratory tests of the blood to confirm the diagnosis of mononucleosis. *The patient should be referred to a physician as soon as possible.*

Treatment

Medical advice by radio should be obtained. There is no specific treatment for infectious mononucleosis except bed rest during the acute phase. Bed rest should be extended in cases that resemble hepatitis. Fever, headache, itching of the skin, abdominal pain and other symptoms should be treated as they arise. The disease may run its course in a few days, a few weeks, or occasionally several months. The acute stage averages three to four weeks, but the side effects may prolong recovery. There is a risk that the disease will recur.

In a small percentage of patients there may be complications such as enlargement of the spleen; and unnecessary palpation of this organ and exercise by the patient increases the potential for rupture.

Because of the prolonged bed rest, taking fluids by mouth should be encouraged. For fever and pain, aspirin 600 mg may be given orally every four to six hours if needed. If aspirin is not tolerated by the patient, acetaminophen may be given at the same dosage. Complications should be treated as recommended by radio medical advice.

MUMPS (Epidemic Parotitis)

Incubation Period: 12 to 26 days.

Isolation Period: 21 days.

Mumps is an acute, contagious, viral disease identified by tenderness and swelling of one or more of the salivary glands. Usually the parotid pair of salivary glands is affected. The virus may be spread by direct or indirect contact with nose and throat discharges from an infected person.

Mumps is most prevalent in the winter and spring, and occasionally cases are seen in cities the year around. It is apt to occur in camps, training stations, and among new members of a ship's company recruited from rural districts and never previously exposed to mumps. One attack usually gives immunity for life.

At first there is a general feeling of malaise, headache, stiff neck, a slight rise in tem-

perature, and at times nausea. In severe cases the temperature may reach 104°F (40°C) and last as long as a week. On the second day the swelling usually begins on one side and increases greatly in size. In a couple of days, there is considerable enlargement at the side of the neck, the posterior part of the cheek, and underneath the side of the jawbone. The patient complains of pain and stiffness on moving the lower jaw. The opposite side of the face usually becomes affected in a few days. The swelling lasts about ten days.

In the average case in childhood, the patient has little trouble beyond stiffness of the jaw, discomfort from swelling, and pain on opening the mouth. However, in young adult males, the infection may spread to one or both testicles to produce a painful inflammation and swelling called orchitis. This is a serious condition because in some adult males there may be long term damage to the testes that could cause one or both to cease to be functional.

Treatment

The patient should have bed rest with strict isolation nursing technique followed, because the infecting virus may be spread by coughing and sneezing. There is no specific medicine for the cure of mumps and symptoms should be treated as they arise.

Petrolatum rubbed gently over the swelling may relieve the stiffness and tightness of the stretched skin. A hot water bottle or heating pad may help to relieve pain. Cold applications should not be used. Mouthwash may be used several times a day. For pain or extreme discomfort, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency.

Nourishing liquids and soft diet with an abundance of water should be given. Milk of magnesia should be administered as needed to avoid constipation.

If the testicles become involved, they should be supported on a towel or pillow. Keep the patient at absolute rest in bed until the swelling and tenderness have disappeared. When the patient is allowed up, he should wear a suspensory. *If there is unusual pain or indication of further complication, medical advice by radio should be obtained.*

PLAGUE

Incubation Period: 2 to 12 days (usually 3 to 4 days).

Isolation Period: Until declared free from infection by a physician.

Plague is an extremely serious bacterial disease caused by the bacillus *Pasteurella pestis*, which is transmitted to man by the bite of a flea that normally lives on a rat. Primarily a disease of rodents, plague only secondarily is a disease of human beings. Plague in the past has been a maritime disease because of the rat population aboard ships.

Federal regulations require that vessels be maintained free of rodent infestation through the use of traps, poisons, and other generally accepted methods of rodent control. Ships must be inspected periodically by the U.S. Public Health Service and a certificate of non-rat infestation given. (See Appendix B.)

This disease is still endemic (always present) in most countries and occasionally assumes epidemic proportions in other areas. The epidemic disease is associated with a rise in infestation by the domestic rat population.

Three types of human plague exist:

(1) The *bubonic type* that affects the lymph glands; (2) the *pneumonic type* that affects the lungs; and (3) the *septicemic type* that affects the blood. All three forms are marked by sudden violent onset, high fever, staggering gait, incoherent speech as in drunkenness, and severe prostration.

Bubonic Plague

The bubonic type, the more common form, is transmitted by the bite of an infected flea from rat to rat, from rat to man, or from man to man. The flea bites a person, rat, or squirrel whose blood contains the bacterium that causes plague. The plague germs pass through the flea's gastrointestinal tract without being killed and are excreted in its feces. The flea travels from the infected person or rat

to a healthy person or rat. The flea bites the healthy person or rat, and while feeding, defecates on the skin. The fecal germs when rubbed into the flea bite or into a scratch or other break in the skin, will get into the bloodstream. The germs multiply in the blood and the individual has plague.

The patient suffers intense headache and drowsiness. His face becomes drawn and haggard with an expression of fear or anxiety. The fever may rise as high as 105°F (40.6°C) on the first day, then fluctuates. The pulse is rapid and weak and the thirst is intense. Delirium and convulsions may follow. About the second or third day, the characteristic buboes develop. The bubo is a swelling of a lymph gland, and is most commonly found in the groins. Buboes may form in other areas, especially in the armpits and neck. A bubo may be as large as a hen's egg.

If untreated, about 70% of patients with bubonic plague will die. In cases that are going to recover, the patient begins to improve after the bubo appears. The temperature falls rapidly with profuse sweating. The bubo or buboes will continue to enlarge, soften, and usually discharge pus. The temperature becomes normal after the sixth to tenth day. Convalescence is rapid.

Pneumonic Plague

Spread by coughing, talking or sneezing, pneumonic plague is the most serious form and resembles pneumonia. Recovery is rare if the patient does not receive care soon after onset. Chills and vomiting often mark the onset. Cough, difficult breathing, and blueness of the skin and lips occur, accompanied by profuse watery, bloodstained sputum (not like the rusty, sticky sputum of ordinary pneumonia). The sputum, alive with plague bacilli, is extremely dangerous. Poisoning of the whole system develops rapidly, breathing becomes rapid, and death occurs in one to four hours.

Septicemic Plague

Septicemic plague, a rare form, resembles an overwhelming general blood poisoning. The patient is prostrated rapidly and hemorrhages often occur into the skin. Death occurs in two to four days; it is preceded by stupor, coma, or delirium. The infection at onset may be so overwhelming that the temperature may rise little, if at all; yet the patient may be dead in 48 hours.

Prevention of Spread

Plague is an official quarantinable disease (see Appendix B). Federal regulations require that the Master, as soon as practicable, shall notify the local health authority at the next port of call, station, or stop, and take such measures to prevent the spread of the disease as the local health authority directs.

Plague vaccine will give some protection. If the ship is proceeding to a port where plague is present, it is advisable to vaccinate the crew. Specific advice should be obtained from the port authorities as to regulations about entering and leaving the port.

Bubonic Plague—If *bubonic plague* occurs on shipboard, the patient should be isolated in a screened room that is free of vermin. The sickroom and the crew quarters should be treated with an insecticide to kill the fleas. (See p. XI–10.) A systematic rat hunt should be organized. Dead rats found aboard ship should not be handled with bare hands. The rats should be sprayed with a strong disinfectant solution to kill any fleas; then they should be picked up with a shovel or tongs and incinerated.

Discharges from buboes are infectious. Disposable surgical supplies such as gauze used on the buboes should be burned or sterilized prior to disposal. Attendants should wash and disinfect their hands with liquid povidone-iodine skin cleanser each time after giving care.

Pneumonic Plague—In *pneumonic plague,* which is spread by the patient's sputum, isolation nursing technique must be observed strictly. Attendants should wear a mask, cap, and gown; these articles must be kept in the sickroom after use and disinfected at the termination of the illness. The medical attendant's hands must be washed with liquid povidone-iodine skin cleanser before leaving the sickroom. Discharges from the patient's mouth must be caught in tissue and disposed of in an appropriate manner for infectious waste material by autoclaving or incineration. All non-

disposable articles soiled with mouth discharges, which cannot be sterilized by autoclaving must be boiled or chemically disinfected. At the end of the illness, disinfection of the room must be carried out. (See p. VII–16.)

Treatment

Radio confirmation of the diagnosis should be made at the first suggestion of symptoms of plague. Also, plans should be made to evacuate the patient and arrangements made to obtain any necessary antibiotics not carried aboard ship.

Cold compresses should be applied to the buboes. When the buboes are open, dressings should be used as for boils. For the average adult, give tetracycline hydrochloride by mouth in an initial dose of 2,000 mg (eight 250 mg capsules), followed by 500 mg every six hours for 10 days. If the patient cannot retain the medication by mouth, the tetracycline hydrochloride will have to be given intravenously. *Before giving intravenous tetracycline hydrochloride, medical advice should be obtained by radio on the need to administer, plus action to get it aboard ship, if not already available.*

For severe pain or delirium, morphine sulfate 10 mg should be given by intramuscular injection. *To repeat the morphine sulfate, medical advice by radio will be needed.* For cough, dextromethorphan hydrobromide syrup with glyceryl guaiacolate, 5 ml (one teaspoonful) should be given by mouth every six to eight hours.

Diet in the acute stages should consist of forced fluids only. As symptoms lessen, the diet may be increased gradually by adding easily digested food.

The patient should be sent to a medical facility ashore at the first opportunity after consultation with the port's health authorities.

POLIOMYELITIS (Infantile Paralysis)

Incubation Period: Commonly 7 to 12 days, with a range from 3 to 21 days.

Isolation Period: Isolation precautions not more than 7 days in hospital management. Of little value in home or ship conditions because the spread of infection is greatest when symptoms first appear.

Poliomyelitis is an acute viral disease that occurs chiefly in children with most of the cases occurring in the first three years of life. Adults usually are immune. Today polio is wholly preventable with two types of vaccine available: the injectable Salk vaccine and the Sabin oral vaccine.

Polio may start with no recognizable symptoms or it may resemble a head cold with fever, vomiting, and irritability. The symptoms last about three days and the temperature may rise to 104°F (40°C). From the fourth to the tenth day the condition will seem to be clearing. However, the symptoms return with a feeling of apprehension, headache, stiff neck and back, and deep muscle pains. Varying degrees of paralysis follow. Thereafter improvement is gradual either with complete recovery or paralysis to some degree.

Treatment

No specific treatment is effective. *When poliomyelitis is suspected, medical advice by radio should be obtained.* The patient should be put to bed and isolation nursing technique observed. For paralysis of body parts, hot moist heat may be applied coupled with gentle, active or passive, motion as soon as the patient can tolerate it.

If urine is retained, a catheter should be inserted (see p. VII–23). All stools and urine are infectious, so bedpans and urinals should be disinfected (see p. VII–16).

RABIES (Hydrophobia)

Incubation Period: 10 days to 12 months (usually under 4 months). Patients bitten about the head and those with extensive bites will have shorter periods.

Isolation Period: Duration of the illness.

Rabies is an acute infectious viral disease that almost always is fatal. When a rabid mammal bites humans or other animals, its saliva transmits the infection into the wound where it spreads to the central nervous system. Rabies is primarily an infection of wild animals as skunks, coyotes, foxes, wolves, raccoons, bats, squirrels, rabbits, and chipmunks. The most common domestic animals reported to

have rabies are cattle, dogs, cats, horses, mules, sheep, goats, and swine. It is possible for rabies to be transmitted if infective saliva enters a scratch or fresh break in the skin.

Human rabies begins with fever, nausea, headache, loss of appetite, and sore throat. The temperature may rise to 103°F (39.4°C). Because these symptoms are common to other viral infections, the condition may be misdiagnosed if the patient's history does not indicate a recent bite by an animal. At the bite wound, there is a tingling or burning feeling. As the infection progresses, the brain and the rest of the central nervous system become involved. Paralysis and muscle spasms occur, with especially painful spasms of muscles in the mouth and throat that control swallowing. The term hydrophobia (fear of water) derives from the refusal to drink by infected animals and humans. They may be thirsty and want the water badly, but efforts to swallow are too painful. The patient becomes very weak and his mental outlook changes. He becomes apprehensive, irrational, even maniacal. He suffers from widespread muscular twitching, severe pain, and convulsive seizures provoked by any stimulus, especially by attempts to drink. The voice becomes hoarse and thick ropy saliva drips from his lips because he cannot swallow. Eventually there are breathing difficulties, coma, and general paralysis. Once symptoms of rabies develop death is virtually certain to result. Thus prevention of the disease is of the utmost importance.

When a human is bitten by a dog or other animal, circumstances surrounding the attack frequently furnish vital information on whether or not use of rabies treatment is indicated. Most bites by domestic animals are provoked attacks; if the history obtained indicates this, usually rabies treatment can be withheld, if the animal appears to be healthy. The dog that bites without apparent cause or provocation should be considered rabid. Each case must be analyzed carefully before a conclusion can be reached on whether or not to proceed with treatment to prevent the disease.

Domestic animals that bite a person should be captured and observed for symptoms of rabies for ten days. If symptoms are not present, the animal may be assumed to be nonrabid. If the animal dies or is killed, the animal's head, undamaged, should be sent promptly under refrigeration but not frozen to a public health laboratory. Any wild animal that bites or scratches a person should be killed at once and the head kept under refrigeration during transportation to a public health laboratory.

Rubber gloves should be worn by the attendant for protection against infective saliva when the head is being prepared for laboratory examination. Then the gloves should be washed thoroughly with disinfectant solution and boiled in the sterilizer for five minutes before discarding. Finally the attendant's hands should be washed with disinfectant solution.

Treatment

As soon as an individual aboard ship is known to have been bitten by a dog or other possibly rabid animal, medical advice by radio should be obtained at once. Usually suspected cases are sent ashore to obtain the expert treatment and nursing care needed to prevent the disease. If it is determined that rabies preventive measures will be started aboard ship, it must be decided how the necessary medications will be put aboard.

Immediate local care should be given. Vigorous treatment to remove rabies virus from the bites or other exposures to the animal's saliva may be as important as specific antirabies treatment. Free bleeding from the wound should be encouraged. Other local care should consist of (1) thorough irrigation of the wounds with large amounts of sodium chloride injection 0.9%; (2) cleansing with liquid povidone-iodine solution; (3) removal of bruised or devitalized tissue from the wound; (4) if recommended by radio, giving an antibiotic to prevent infection; and (5) administering adsorbed tetanus toxoid, if indicated.

Generally, immediate suturing of the wound is not advised because it may contribute to the development of rabies. However, if exposure to rabies is unlikely, a severe laceration secondary to a bite may be sutured.

RELAPSING FEVER
(Tick-, Spirillum-, Famine-, or Recurrent Fever)

Incubation Period: 5 to 15 days (usually 8 days).

Isolation Period: None, if the patient's clothing, immediate environment, and all household contacts have been deloused or freed from ticks.

Relapsing fever is an acute infectious disease, caused by several species of spirochetes of the genus *Borrelia,* that is transmitted by lice and ticks. The first attack shows rapid heartbeat, fever, chills, dizziness, headache, muscle and joint pains, vomiting, and at times delirium. The fever remains high for two to nine days, then ends suddenly by crisis. This is followed by a week of fair health without symptoms, after which a relapse occurs with the same symptoms, plus jaundice in many cases. There may be three, four, or more recurrent attacks, each decreasing in severity, as immunity develops. The actual duration of immunity is unknown, probably less than two years.

A sick member of the crew should be suspected of having the disease if the ship recently had been in a port where relapsing fever was prevalent, or the disease had been diagnosed in any of the crew by a shore physician. With known relapsing fever suspects aboard, a thorough search should be made for ticks, lice, and bedbugs. If these are found, the crew's quarters should be treated with an insecticide (see p. XI–10).

Lice are infected when they feed on patients during the fever stage. After the lice are crushed on a person's body, the spirochetes can enter any scraped skin or be carried by contaminated hands that rub the eyes. Ticks become infected when they feed on wild animals that carry the disease.

Treatment

Medical advice by radio should be obtained. Tetracycline hydrochloride 500 mg should be given by mouth every six hours for one day; then 250 mg every six hours for seven days.

RHEUMATIC FEVER

Rheumatic fever is characterized by fever up to 103°F (39.4°C) and painful swelling of the large joints. The swelling migrates from one joint to another. A knee may be hot, painful, and swollen one day and the next day appear normal, when a wrist, ankle, or shoulder may be involved. Several joints may be affected at the same time. These symptoms may follow a sore throat, a general feeling of not being well, vague pains in joints, a rapid irregular heartbeat, and pain in the abdomen or chest.

This disease is a complication of Group A streptococcal infections. The greatest danger of the disease is the frequency with which it affects the heart. Both the prevention of rheumatic heart disease and its treatment require weeks or months of bed rest. The only way to tell when it is safe for the patient to get out of bed is by certain laboratory tests.

Treatment

Medical confirmation of a rheumatic fever diagnosis should be obtained by radio. The patient should be kept totally at rest in bed to protect the heart. Antibiotics should be given only on the advice of a physician. Aspirin should be given in large doses, 1200 mg every four hours, to help control joint symptoms and fever. Local gastric reaction usually can be avoided or controlled by giving milk or an antacid with the aspirin, or between doses of the aspirin. The aspirin dosage should be reduced if the patient develops nausea or ringing in the ears.

Woolen strips wrapped around the affected joints will help. A swollen knee can be made more comfortable if a pillow is placed underneath the joint. Menthol compound ointment can be applied gently to the skin around sore joints to afford some relief. If the patient cannot sleep, pentobarbital sodium 100 mg should be given by mouth at bedtime.

Until four weeks after all joint pains and temperature have subsided, there should be strict bed rest, careful nursing, and special attention to symptoms including heart complications. At the earliest opportunity arrangements should be made to transfer the patient to a hospital ashore.

SCARLET FEVER (Scarlatina)

Incubation Period: 1 to 7 days.

Isolation Period: Until declared free from infection by a physician.

Scarlet fever is an acute infectious disease caused by streptococci bacteria invading the

nose and throat. The symptoms appear suddenly and consist of general discomfort, runny nose, fever, headache, nausea, vomiting, and sore throat.

The typical rash does not appear until later —12 to 36 hours or more after symptoms occur. The rash is most intense at the creases of the body, such as the groins and armpits. The face is relatively free of it. The rash consists of pinpoint red spots scattered on a flushed skin. Occasionally, the spots may be so elevated that they can be felt with the hand. A sign of less importance, the so-called "strawberry tongue," is a furring of the tongue with prominent red, pinpoint spots at the edges.

The complications from scarlet fever may be severe. These include discharging ears, swollen glands of the neck, rheumatic fever, and kidney disease. *Medical advice by radio should be obtained.*

Treatment

The patient should be strictly isolated. Absolute rest in bed is necessary to protect the heart and kidneys. All dishes, silverware, and other utensils used by the patient should be disinfected. (See p. VII–19.)

For the infection, an initial dose of penicillin V potassium 500 mg should be given by mouth followed by 500 mg every six hours. If the patient is suspected of being allergic to penicillin, oral erythromycin should be used in the same dosage and frequency. The penicillin or erythromycin treatment must be continued for ten days.

For pain and fever, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency.

The patient should have a liquid diet and other supportive treatment as necessary. As the patient improves, he may have a soft or regular diet. However, meats should be restricted until all risk of kidney damage is past. He should be kept in bed longer than the usual patient with fever (several days to a week or two after the fever has disappeared), depending upon the severity of his illness.

SMALLPOX (Variola)

Incubation Period: 9 to 16 days (usually about 12 to 14 days).

Isolation Period: Until declared free from infection by a physician.

Smallpox is a highly contagious viral disease with general bodily symptoms and a typical skin eruption that results in permanent scarring.

Smallpox still is prevalent in parts of the world. In many ports, quarantine and health authorities will request evidence of a recent successful vaccination. Therefore, every seaman should carry with his papers a written certificate showing dates of vaccination and types of reaction. (See Appendix B.) The type of reaction is important, because it indicates whether a vaccination is successful or not. Some countries will not admit aliens who have not been vaccinated successfully within periods of two, six, or 12 months or longer (depending upon the laws of the country in question). Seamen who lack satisfactory evidence of compliance (vaccination certificate as described) may be denied shore liberty at ports in such countries.

A *successful* vaccination is defined as one that is followed by an immune reaction, a modified immune reaction, or a successful "take." An *unsuccessful vaccination* is one without any reaction. The reaction must be read by a physician, three to nine days following vaccination.

Smallpox usually develops in 9 to 16 days (usually 12 days) following exposure to the disease. The onset is sudden with violent chills, intense headache, severe pains in the back, vomiting, strong rapid pulse, and a quick rise of temperature to 103°F (39.4°C) or 104°F (40°C). On the third or fourth day, coarse red spots appear, usually first on the forehead and wrists, then spreading over the body. After four days the spots become blisters. Four days later, the blisters become filled with pus that has a foul odor. At this stage, the fever rises again, later dropping as crusts form over the pustules, which begin to dry up and scale off. If the pustules have been deep enough, permanent scars (pockmarks) are left on healing.

In smallpox, all skin lesions in an area of the body are similar in appearance, whereas in chickenpox they vary. (To differentiate smallpox from chickenpox, see p. V–40.)

Medical advice by radio should be obtained at once if the patient appears to have smallpox, because of the severity of the disease and the possible spread to susceptible crewmen. Smallpox is an official quarantinable disease. (See Appendix B.) Federal regulations require that the Master, as soon as practicable, notify the local health authority at the next port of call, station, or stop, and take such measures to prevent the spread of the disease as the local health authority directs.

Treatment

There is no specific treatment for smallpox. The patient should be isolated and careful isolation nursing techniques followed. (See p. VII–19.) A sponge bath should be given twice a day with warm water in which sodium bicarbonate has been dissolved (one teaspoonful to a pint of water). Zinc oxide paste should be applied to the eruptions. A warm alkaline aromatic solution should be used as a mouthwash and gargle. The eyelids should be cleansed with sterile isotonic eyewash solution, as often as they become encrusted.

An ice bag on the head may help relieve headache or an excessive rise in temperature. For severe pain, aspirin 600 mg with codeine sulfate 30 mg should be given by mouth every four hours as needed. Aspirin alone may control the pain and discomfort after four or five doses; *if additional doses of codeine sulfate appear needed, medical advice by radio should be obtained.* If aspirin is not well tolerated by the patient, acetaminophen 600 mg, with or without codeine sulfate, may be tried at the same dosage and frequency. To control constipation, milk of magnesia should be administered by mouth as necessary. Plenty of fluids should be given. The liquid diet should be changed to a soft diet as convalescence begins.

TETANUS (Lockjaw)

Incubation Period: 3 days to 21 days or longer (dependent on the character, location, and extent of the wound).

Isolation Period: Until there are no more symptoms.

Tetanus is an acute infectious disease caused by toxin produced by the bacillus *Clostridium tetani,* a bacterium that grows in the absence of air at the site of an injury. Tetanus bacteria are found in the intestines of horses, cows, and other animals; also in animal manure and soil into which it has been dropped. Spores formed by tetanus bacilli are hard to kill; they can stay alive for years in the soil of gardens and farms, on country roads and city streets, ready to be transplanted into humans or other favorable environment for growth.

Tetanus bacteria almost always enter the body through wounds. They are likely to thrive in deep puncture wounds, from a nail, splinter, bayonet, or pitchfork; or those in which the flesh is bruised, crushed, or torn; abrasions into which dirt or soil is forced; or wounds from foreign objects driven deeply into the flesh, as gunpowder, bullets, or pieces of clothing.

The wound may not show any change when the beginning symptoms of tetanus develop; in fact it may seem to be healed. The toxin produced by the bacilli is carried to the central nervous system to produce the symptoms of tetanus. Early symptoms are aches and pains in the muscles, a general feeling of fatigue, and some headache. Soon the characteristic signs appear: stiffness of the neck and jaw which gradually extends to the muscles of the back and the extremities. The forehead is wrinkled, the corners of the mouth are drawn upward, and the jaws are tightly closed (lockjaw). The body is held rigidly straight or arched so that the patient when placed on his back may touch the bed only with his head and heels.

There is such extreme nerve sensitivity that the slightest jar, touch, or noise may cause spasms of the back and other muscles with agonizing pain. The temperature varies; usually it is high during the state of convulsions, rising to 103°F (39.4°C).

Prevention

A person can be protected (immunized) against tetanus by injections of adsorbed tetanus toxoid. Every seaman should obtain his

primary immunizations and booster shots as required. (See Tetanus Toxoid, Adsorbed, p. VI–46.)

Treatment

If the medical attendant suspects that a patient has tetanus, immediate medical advice by radio should be obtained on diagnosis and treatment. First the wound should be cleaned, all foreign matter removed with a sterilized forceps, and a sterile dressing applied. Expert medical care and the administration of tetanus immune human globulin should be provided in the quickest possible manner. Medical advice by radio should be gotten on the dosage of tetanus immune human globulin.

Treatment with an antibiotic is felt to have no definite beneficial effect on the course of tetanus. However, penicillin G procaine sterile suspension 600,000 units should be given intramuscularly every twelve hours, *if the patient is not allergic to it.* The penicillin will help to minimize or control the development of pneumonia or secondary invasive wound infections.

If a case of tetanus should develop aboard ship, prompt evacuation to an appropriate medical facility is indicated. The patient must have constant nursing care and utmost quiet is essential to prevent the exhausting painful spasms.

There will be need for treatment with sedative and muscle relaxant drugs such as diazepam by injection. *Medical advice should be obtained for specific drugs and dosage.* During a convulsion, the jaws should be separated with a pencil wrapped in gauze to keep the patient from biting his tongue. A liberal fluid diet should be given, if tolerated; otherwise, no attempt should be made to give fluids or food by mouth. (See Delirium and Convulsions, p. V–70+.) *However, medical advice by radio should dictate the treatment aboard ship and during an evacuation to a medical facility.*

Federal regulations require that the Master, as soon as practicable, shall notify the local health authority at the next port of call, station, or stop that a tetanus case is aboard ship. The Master should take such measures as directed by the local health authority to prevent spread of the disease.

TYPHOID FEVER (Enteric Fever)

Incubation Period: Variable, 3 to 25 days (usually 7 to 14).

Isolation Period: Until declared free from infection by a physician.

Typhoid fever is an acute infectious bacterial disease caused by *Salmonella typhosa.* It can be acquired by eating or drinking food or water contaminated by infective human feces or urine. The disease occurs worldwide, especially among individuals and groups who do not practice good sanitation in restaurants, shops where food is displayed, town sewage systems, or local water supplies. Flies and other insects can spread the disease if they crawl on milk or other foods after contacting infective stools. Uncooked shellfish, especially raw oysters, often are a source of infection. There are people with active typhoid germs in their bodies, whose urine or stools can infect others, yet they show no signs of the disease. Individuals with careless habits of hygiene, who do not wash the hands thoroughly after using the toilet, may spread the infection, especially if they are food handlers.

The disease begins slowly with a chilly feeling, and diarrhea or constipation. The patient complains of a constant severe headache and possibly some nosebleeding. The pulse rate is slow. He feels tired, listless, exhausted from minor exertion, and loses his appetite. During the first few days, he has some fever, higher at night than in the morning. After a few more days, the temperature rises to 103° to 104°F (39.4° to 40°C), and remains high. His face indicates mental dullness. The tongue is heavily coated. The abdomen becomes painful, tender, distended, and full of gas.

Usually there is a reddish rash (rose spots) that appears on the abdomen first, from the seventh to the tenth day. Slightly raised and flattened, the spots can be felt with the finger; their rose color disappears on pressure. From one-twelfth to one-sixth of an inch in diameter the spots come in successive crops, disappearing in two or three days, perhaps leaving a brownish stain. The rash may extend over the entire body.

During the third week, there may be bleeding from the bowels, due to ulcers of the in-

testines. When an ulcer eats through a large artery or through the intestinal wall, hemorrhage or peritonitis occurs.

In mild cases, the patient begins to improve at the end of the second or the beginning of the third week. At times, the disease persists for six, eight, or more weeks before convalescence begins.

Treatment

For typhoid fever, ampicillin by mouth in a high dosage is indicated. *Medical advice by radio should be obtained to determine the dosage regimen.*

The patient should be kept quiet in bed and given a liquid or semisolid diet. He should drink plenty of water. The mouth and teeth should be cleaned daily. A bedpan and urinal should be used. A large catheter inserted in the rectum may enable gas to escape to provide abdominal relief. An ice bag applied to the head will relieve the headache. Cool sponge baths should be given once or twice a day when the temperature is above 103°F (39.4°C).

Isolation procedures should be followed. (See p. VII–19.) Excretions from the bowels and bladder can be flushed down the toilet, if the ship has a sewage treatment system or retention tank. Linens can be disinfected through routine commercial laundering procedures. Other equipment should be cleaned with hot soapy water, rinsed, and wiped with a good disinfectant.

TYPHUS FEVER (Epidemic Typhus Fever)

Incubation Period: 10 to 20 days.

Isolation Period: Until declared free from infection by a physician.

The term typhus fever is applied to several worldwide forms of the disease that are caused by various strains of rickettsiae (organisms smaller than bacteria but larger than filterable viruses). These diseases are transmitted to humans by body lice, ticks, fleas, mites, and possibly bedbugs.

A comparatively mild form of typhus is transmitted from the rat to man by the rat flea. This form does not occur in epidemics but breaks out where rats, fleas, and humans live together. In the past it was the only form of typhus prevalent in the United States when several thousand cases occurred annually. The current level is less than 100 scattered cases reported yearly. Symptoms are the same as those for louse-borne typhus.

In *epidemic typhus fever* which is the most severe form, the disease is transmitted directly from person to person by body lice. Uncleanliness and crowded living conditions favor the spread of body lice from one person to another. Epidemic typhus always had been the scourge of armies and populations in war-devastated areas. However, since World War II the combination of dusting with insecticides to kill the lice, successful vaccination, and the highly effective treatment with broad-spectrum antibiotics has brought control of the disease.

Louse-borne epidemic typhus is an acute infectious disease. In suspected cases it is important to look for lice on the patient's body or clothing and to find out if recently he had been in an area where typhus was prevalent. For a day or two before the actual onset, the patient may feel ill and have a slight headache, dizziness, and loss of appetite. The onset may be sudden and violent with chills, severe headache and backache, loss of appetite, a bruised feeling in the limbs, with sweating and great thirst. The fever starts high, 103°F to 105°F (39.4°C to 40.5°C) and returns to normal in two weeks.

A rash breaks out on the fourth to the seventh day. It appears first near the front of the armpits and the sides of the abdomen; then spreads gradually over the entire trunk and extremities. Usually it does not affect the face and neck. At first the rash resembles that of measles, of a color that varies from dirty pink to bright red. Usually it disappears when the skin is pressed down with the fingers. In most cases the rash darkens as the disease progresses and begins to fade as the fever drops.

Signs of general toxemia—intense headache, mental confusion or stupor, muscular twitching, a dry brown trembling tongue, and exhaustion—are common by the end of the first week. At the beginning of the second week, the headache may be replaced by violent delirium, at times accompanied by suicidal tendencies. Toward the end of the second week, the patient may fall into a stupor from exhaustion.

and continue in this condition until either he dies, or the temperature drops suddenly and he begins to get well. The crisis as a rule occurs on the fourteenth to the eighteenth day. From then on, the mental condition clears, the appetite returns, and the patient convalesces.

Typhus sometimes is confused with typhoid fever; and before the rash appears, with meningitis, influenza, smallpox, and other severe infectious fevers. However, a history of louse infestation, the sudden and violent onset of the disease, the character and distribution of the skin eruption, and the characteristic duration of fever with termination by crisis, make up a distinctive set of signs and symptoms.

Typhus is an official quarantinable disease. Federal and international regulations require that the Master, as soon as practicable, notify the local health authority at the next port of call, station, or stop. To prevent the spread of the disease the Master should take such measures as the local health authority directs. (See Appendix B.)

Treatment

The patient with typhus fever must be isolated in a vermin-free room. There is no danger of infection from him if there are no lice or other insect vermin to transmit the disease to others. Measures should be begun to kill any lice present. (See p. XI–10.)

Epidemic typhus fever is a serious disease that requires careful nursing. Patients may be irrational, agitated, and injure themselves or attempt self-destruction. Close observation and restraints may be required. (For treatment of Delirium, see p. V–71.)

For the infection, tetracycline hydrochloride 500 mg should be given by mouth every six hours. *As soon as typhus is suspected, medical advice by radio should be obtained, particularly as it relates to the duration of treatment with tetracycline hydrochloride.* Intravenous administration of tetracycline may be necessary, if the patient is uncooperative or vomiting. Before giving intravenous tetracycline hydrochloride, medical advice by radio should be gotten on the need to administer, plus planning to get it aboard ship, if not already available.

Sedatives may be required. Pentobarbital sodium 50 mg should be given by mouth every four hours during the day and phenobarbital 90 mg given by mouth at bedtime.

For pain, codeine sulfate 30 mg and/or aspirin 600 mg may be given by mouth every three to four hours, if recommended by radio. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency.

To prevent constipation, milk of magnesia should be given daily as needed.

Because typhus fever exerts a severe strain on the patient's heart, he should be kept in bed until a doctor sees him. His strength should be conserved in every way possible, so a urine bottle and a bedpan must be used.

Typhus fever and typhoid fever should not be confused. These are two different diseases that have no connection with each other.

UNDULANT FEVER (Malta Fever, Brucellosis)

Incubation Period: Variable; usually 5 to 21 days, at times several months.

Isolation Period: Until convalescence begins.

Undulant fever is an infectious disease that strikes both humans and animals, but symptoms differ for both groups. It is caused by several bacterial strains of the genus *Brucella.* The disease is contracted mainly from milk and milk products obtained from dairy cattle with Bang's disease (infectious abortion).

At first fever may be the only symptom, but the patient will not appear acutely ill. Then there is a gradual onset with irritability, a general feeling of discomfort, weakness, headache, pains in joints, with sweating and chills. In early stages, it may be confused with rheumatic fever, tuberculosis, typhoid fever, or malaria. The temperature may rise to 104°F (40°C) and remain elevated for one to four weeks followed by a fall to normal for a few days, and then a relapse. The intermittent periods of fever, separated by days when symptoms are absent or reduced, may last for months, even years. It is these repeated waves (undulations) of fever with intervening remissions that give the disease its name.

As the disease becomes chronic, enlargement of the spleen and lymph nodes occurs. Other symptoms in the later stages include

weight loss; constipation; loss of appetite; aches in head, back, joints, abdomen; insomnia; and mental depression.

Exact diagnosis will be dependent upon laboratory procedures, so a suspected case should be transferred to a doctor's care as soon as possible. The patient should be asked if he drank goat's milk, and any found aboard should be discarded. Cow's milk obtained in foreign ports should be boiled before use.

Treatment

Medical advice by radio should be obtained, especially on the medication. The patient should be isolated and the symptoms treated as they arise. All utensils used by the patient should be disinfected. Headache and pains in the joints and limbs may be relieved by aspirin 600 mg or codeine sulfate 30 mg, administered orally every four to six hours. Tetracycline hydrochloride 500 mg may be given orally every six hours for 21 days to treat the infection. For relapses this treatment may be repeated. Fluids should be forced.

WHOOPING COUGH (Pertussis)

Incubation Period: 7 to 14 days.

Isolation Period: 4 weeks after the "whoop" begins.

Whooping cough is a highly communicable bacterial disease of early childhood that is caused by the bacillus *Bordetella pertussis*. Although it is unlikely to occur among the crew, it should be suspected if the patient had been exposed to a case of whooping cough one to three weeks previously, develops a cold with a cough, the coughing causes vomiting, and the typical "whoop" develops. The disease is spread by the patient's coughing, sneezing, and through contact with anything he has touched.

The disease often starts like an ordinary cold with runny nose, sneezing, and coughing. Usually there is no fever. Then listlessness shows with a loss of appetite and a persistent hacking cough that occurs at night but gradually includes the daytime as well. This catarrhal stage lasts about two weeks. In the next stage the patient will exhibit chilling and a thick mucus forms in the respiratory tract with increased coughing in spasms. There will be coughing spells 6 to 12 or more times in rapid succession all in one breath. This forces air from the patient's lungs and his face turns bluish from the extreme effort and the lack of air. The patient catches his breath in a long noisy deep inhalation (the whoop). During these coughing spasms much mucus is brought up but the irritation continues. The combined coughing and gagging often leads to vomiting.

The characteristic whooping type of cough reaches its worst stage about two or three weeks after symptoms begin. Then the convalescent stage occurs when coughing reduces in frequency and severity and vomiting decreases.

Treatment

No specific treatment for whooping cough is known. *Medical advice by radio should be obtained, especially on the repeated dosage of codeine sulfate described below.*

The patient should be isolated. This will protect others from the disease and there will be less likelihood for the patient to develop serious complications as pneumonia, middle ear infection, chronic bronchitis, or encephalitis, among others. There always is the threat of suffocation, plus inhalation of vomitus while coughing. Use of suction may be lifesaving.

Antibiotic therapy has not been proven to be beneficial in uncomplicated whooping cough. Treatment should be symptomatic, with aspirin 600 mg and/or codeine sulfate 30 mg given by mouth every six hours, if needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage. Phenobarbital 30 mg may be given every eight hours by mouth, if mild sedation is warranted. Between periods of nausea, it is important to maintain the patient's intake of fluids and soft foods.

YAWS

Incubation Period: 14 to 90 days; generally 21 to 42 days.

Isolation Period: Until a physician declares the patient free from infection.

Yaws is a highly infectious, nonvenereal, bacterial tropical disease caused by *Treponema*

pertenue, a species of spirochete similar to that of syphilis. Although the disease strikes all age groups, it is mainly a disease of children. The organism that causes yaws can enter the body through a slight scratch or other break in the skin. The disease may be spread through physical contact with sores of infected patients or their clothes; or by insects contaminated by discharges from the patient's skin.

About a month after a person becomes infected, the first symptom appears as a painless inflamed raspberry-red elevation of the skin. This is called the "mother yaw" which enlarges and forms an ulcer in its center. The primary lesion may heal in a few weeks or persist for months if left untreated.

Two to eight weeks after the appearance of the "mother yaw," open oozing sores occur on the face, scalp, trunk, hands, or feet. The patient may show a slight rise in temperature, an overall unwell feeling, headache, and pains in bones and joints. There may be a fine peeling on the skin. Wartlike lesions that arise may run together in masses that project about a half inch above the surface of the skin. In two or three weeks as the discharges lessen, the lesions get smaller and finally heal. Ulcers on the soles of the feet may be very painful and resist healing. Skin lesions may disappear in untreated cases and recur after several years with disfiguring aftereffects to the nose and facial tissues—and deformities to the hands and feet.

Treatment

Medical advice on treating yaws should be obtained by radio. The patient should be isolated and the lesions covered with a simple dry dressing. Soiled dressings should be discarded carefully. (See p. VII–22.) The infection rarely is fatal and antibiotic treatment should be withheld if the patient will reach port soon. This will not jeopardize the general health of the patient. If treatment aboard ship is necessary, an intramuscular injection of 1.2 million units of penicillin G procaine should be administered at one time for an adult. Medical advice by radio should be sought for the dosage appropriate for an infected child.

YELLOW FEVER

Incubation Period: 2 to 6 days.

Isolation Period: About 6 days. Screen the patient's room, use a bednet, and spray quarters with insecticide that has a residual effect.

Yellow fever is a generalized often fatal viral disease that is transmitted by the bite of an infective female *Aedes aegypti* mosquito. In tropical forests several other species of mosquitoes are able to transmit it.

To spread the disease a female mosquito must feed on the blood of an infected person about two days prior to onset through the third or fourth day of the attack. The virus develops in the mosquito's blood for 9 to 12 days during which time she cannot transmit the disease. Thereafter for the rest of the female mosquito's life, she can give yellow fever to any nonimmunized person that she bites.

The disease has a swift severe onset with chills and high fever, intense headache, plus pains in the limbs and back. There is constipation, nausea, vomiting, and the patient is prostrated. The eyes are watery with the lining of the eyelids an inflamed red. The fever usually reaches a maximum 104°F (40°C) within 24 hours. Muscle pains get worse and the patient is restless, anxious, and sleepless. The tongue is bright red along the edges with a furred coating in the middle. As the disease progresses and the temperature increases, the pulse rate may show a drop from a rate of 120 per minute to 50–60 per minute.

In three to five days the fever may go down and there will be a lull of a few hours to a day or two. The patient feels better and may begin to recover. In severe cases, however, the lull is followed by a return of the vomiting and fever. Three characteristic clinical symptoms appear: (1) marked jaundice (yellow color) of the eyes and skin about the third day because the virus destroys liver cells; (2) albumin in the urine because the kidneys are affected; and (3) "coffee grounds vomitus" from blood that has seeped through mucous membranes into the stomach. Other signs of hemorrhage are tarry stools; nosebleed; blood from tongue, lips, and gums; and purple spots in the skin. The urine flow lessens and may contain blood. Interference

with kidney and liver function can lead to delirium, convulsions, coma, and death in some cases. However, these symptoms may subside and the patient recover.

An attack of yellow fever may be very mild, with only slight backache, headache, and a fever that lasts about two days. It may be severe as just described, or there may be a sudden violent attack with rapid development of the worst symptoms. The death rate ranges from 10% to 85%. One attack provides immunity thereafter.

In combating yellow fever the emphasis must be on prevention rather than cure. Crews of ships bound for yellow fever areas should be immunized. One inoculation will produce immunity that will last for ten years. All countries in yellow fever areas require that persons entering ports of that country be immunized before entry. All measures described under malaria (see p. V–44) for the control of mosquito-borne diseases should be carried out when the ship is in a port where yellow fever prevails.

Federal regulations require that the Master, as soon as practicable, shall notify local health authorities at the next port of call, station, or stop that he has a suspected case of yellow fever aboard. The Master shall take such measures to prevent the spread of the disease as the local health authorities direct.

If a case occurs aboard ship, the patient must be isolated in a screened room. Mosquito netting must be placed over his bunk for at least six days after onset. Nonimmune members of the crew who report mosquito bites should be isolated to the extent possible and inspected daily for symptoms.

The ship must be freed from mosquitoes by the use of residual insecticide sprays or other means of control (see p. XI–10).

Medical advice by radio should be obtained.

Treatment

There is no specific treatment for yellow fever. Complete bed rest in isolation in a mosquito-proof area with the best of nursing care are necessary. Forced fluids are needed to prevent dehydration; if continued vomiting prevents this, dextrose 5% and sodium chloride 0.45% injection should be administered intravenously. For fever, an ice cap or cold compresses should be applied to the head, and the body sponged with cool water. For restlessness, phenobarbital 30 mg should be given by mouth three times a day, and to induce sleep pentobarbital sodium 100 mg by mouth at bedtime.

For severe pain, aspirin 600 mg with codeine sulfate 30 mg should be given by mouth every four hours as needed. Aspirin alone may control the pain after four or five doses. If more than five doses of codeine sulfate appear to be needed, medical advice by radio should be obtained. If aspirin is not well tolerated by the patient, acetaminophen 600 mg, with or without codeine sulfate, may be tried at the same dosage and frequency. To relieve mouth dryness, cracked ice may be given.

When the patient is able to eat, he should have a diet high in carbohydrates (bread, toast, crackers, potatoes, cereals, and sweets) and low in protein and fats. However, cheese, milk, and eggs are permissible.

- Arthritis
- Gout
- Backache
- Bursitis
- Muscular Pains
- Neck Pains
  Wryneck

Chapter V

Treatment of Diseases

Section G

MUSCULOSKELETAL DISEASES

ARTHRITIS

ARTHRITIS, WHICH IS AN INFLAMMATION of a joint, often causes pain, deformity, and disability. It occurs as a result of aging, infection, irritation around a joint, scurvy, allergy, gout, and rheumatic fever.

Treatment

Rest and aspirin are the basic treatments for the acute pain of arthritis. Aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency. In mild cases, an elastic bandage may ease the pain.

Mild heat applied to a painful arthritic joint may give relief. A heating pad carefully wrapped with towels may be applied to the joint. Also, a bath at usual bathing temperature is beneficial. If this is not possible, the limb can be immersed in warm water, or warm soaks can be applied. These treatments may be repeated two or three times a day if they are well tolerated by the patient.

In some types of acute inflammatory arthritis, it is common to have pain, redness of the skin over a joint, and the joint may be swollen and hot to the touch. When such a condition occurs, ice packs applied for 15 minutes at 2-hour intervals may give more relief than the heat applications.

Complete immobilization also is a standard form of treatment for an acutely painful joint. The joint should be wrapped in cotton and supported on each side. Also the joint can be immobilized by loosely binding it to a well-padded, wooden splint. As a joint improves, the patient may move it by himself and work as long as the movement does not cause pain.

An acutely painful joint, especially if accompanied by fever, calls for absolute rest in bed. The patient while awake should be encouraged frequently to drink water, tea, fruit juice, or similar fluids. This fluid intake should be two quarts or more in 24 hours. A nourishing diet should be provided.

In cases of acute arthritis, medical advice by radio should be obtained. The patient should be referred to a physician at the next port,

especially if the joint is infected. An infected joint is a serious condition which may develop complications and result in disability.

GOUT

Gout is a disease caused by a breakdown in the body's ability to act on some protein food substances, especially compounds called *purines* that are found in meats and seafoods. This defect in body chemistry causes a buildup of excess uric acid in the blood because the kidneys cannot excrete it fast enough. Some of the excess uric acid salts may be deposited in joints and other body tissues. At times, the kidneys may be affected. About 95% of the patients are men, usually over 30 years of age. The disease also seems to be hereditary in certain families.

The major symptoms of gout are the same as those of severe arthritis. Usually an *acute attack* occurs without warning, often at night, with excruciating pain in the affected joint. Most often the big toe is affected, but the ankle, knee, or any other joint may be the site of the attack. The joint will become swollen, tender, warm, and the skin reddish in color. The patient may have a headache or fever, and may not be able to walk because of the pain. In fact the person might not be able to bear the weight of bedclothes on the affected area.

An acute attack of gouty arthritis may last three or more days after which it gradually subsides and the patient becomes symptom-free. At first, attacks may occur every four months or more and only one joint is affected. As the attacks occur more often, several joints may become involved. If treatment is neglected, the attacks occur more often and deposits of urates are made at the joints to form chalky nodules (*tophi*). These deposits can lead to permanent deformities at the joint.

Treatment

In cases of a suspected acute gout attack, acetaminophen may be administered by mouth at a dosage of 600 mg every four hours. If the patient has been treated previously for gout and has a supply of medication prescribed by his physician for either maintenance or acute treatment, he should continue to follow the prescribed regimen until further medical advice by radio can be obtained.

The patient should be kept in bed with the affected joint protected. Walking too soon after an attack may cause another attack to occur. Foods high in purines (as liver, kidney, sweetbreads, sardines, anchovies) should be eliminated from the patient's diet. While bedfast and thereafter, the patient should force fluids—drink about 8 or 10 glasses of water daily to help flush the uric acid from the kidneys. On reaching shore, the patient should seek medical advice. Under the care of a physician, a cooperative gout patient may use several drugs available today to help him lead a very comfortable life.

BACKACHE

Lower back pain is common and can result from many causes. An underlying anatomic problem often exists. Lower back pain may be from muscle strain or inflammation. It may result from stresses which tend to lower the resistance of the back and make it easier for the joints to become inflamed and painful, as in chronic lumbosacral strain. Pain can be referred to the back from a diseased internal organ. This may result from gallbladder and kidney disease, and ulcer of the stomach or intestine.

Other causes of a lower backache include simple fatigue, nervous exhaustion, bone disease, lead poisoning, hemorrhoids, varicocele, enlarged prostate, and acute infectious diseases. An ache in the lower back (lumbosacral) may be caused by a fall or jump from a height, a blow, twisting, lifting, prolonged standing, sustained stooping, sleeping on a sagging mattress, a heavy or pendulous abdomen, unnatural curvature of the spine, hip disease, or by certain foot conditions.

Pain in the upper back (thorax) may be associated with heart disease, inflammation of the lungs (pneumonia) or pleura (pleurisy), gallbladder disease or gallstones, or stomach trouble (indigestion or stomach ulcer). Careful questioning and examination of the patient will help to establish a diagnosis.

Treatment

For back pain, the symptoms should be treated. The back should be massaged with menthol ointment compound or a smiliar product, and a hot water bottle or electric heating pad applied. The patient should be instructed to rest in bed on a firm hard mattress if the pain is severe and there is a spasm of the back muscles. For pain, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency. The patient should be referred to a physician.

BURSITIS

Bursitis is the inflammation of a bursa. A bursa is a small fluid-filled sac, which is located between moving parts of a joint and certain other areas of the body to reduce friction upon movement. When a bursa becomes inflamed from injury or infection, movement of the parts around the bursa is impeded by the pain and swelling. The walls of the sac may stick together (adhesions). Bursitis often resembles arthritis so closely that it may require an X-ray study and other examinations for differentiation.

Of the many bursae in the body, only the few most likely to become inflamed are discussed here. When the bursae around the shoulder joint are inflamed, they may cause pain and limit motion. Inflammation of the bursae in front of the kneecap may cause a red, painful swelling (housemaid's knee). Pain in the heel or elbow may be caused by inflammation of the bursae in these regions.

Treatment

Resting the bursitis area is important during the first few days of acute inflammation. Local heat should be applied, such as an electric heating pad. For pain, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency. If pain is not controlled by aspirin or acetaminophen alone, codeine sulfate 30 mg by mouth may be given concurrently with either of these medications. To repeat the codeine sulfate, medical advice by radio should be obtained.

After the first few days as pain begins to decrease, the patient should be instructed to try active movements, especially if the shoulder joint is involved. Exercising the disabled joint should be done even with a mild degree of discomfort. But exercise sufficient to produce a great deal of pain is not indicated and may be harmful.

MUSCULAR PAINS
(Soreness, Stiffness, Myositis, Muscular Rheumatism, Charleyhorse, Stone Bruise, Muscle Bruise, Myalgia, Lumbago)

Muscle ills are due to physical strain, overwork, direct violence, exposure, toxins of diseases, other poisons, and direct infection as with pus-forming organisms. Stiffness and painful swelling of the muscles are among the symptoms that characterize the disease *trichinosis* that is caused by eating undercooked or raw pork containing the parasitic roundworm trichina. (See p. V–35.) Aching pains in the muscles, small of the back, and joints usually occur in the early stages of most acute communicable diseases.

Treatment

If symptoms are severe enough, the affected muscles should be rested. Heat should be applied and gentle massage given. Bowel regularity should be maintained. (See Constipation, p. V–18.) For pain aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency. Medical advice by radio should be obtained for symptoms other than described above or if the symptoms are excessively severe.

NECK PAINS

Pain and stiffness in the back of the neck associated with other signs of general infection as head cold, headache, fever, nausea, and vomiting accompany the onset of several serious diseases. These diseases include cerebrospinal meningitis, poliomyelitis, and tetanus.

In the absence of signs of a generalized infection when only local symptoms are present, a stiff, painful neck usually is due to inflamma-

tion of muscles, ligaments, bursae, or nerves of the head and neck.

Wryneck

Wryneck (spasmodic torticollis) is caused by a spasm of muscles of the neck. Contraction of the affected sternomastoid muscle rotates the head to the opposite side and bends the neck to the side of the contracting muscle. A continuing spasm forces the head-neck into a sustained rotated posture. An intermittent spasm causes repeated, jerky movements of the head to one side. The cause of wryneck is unknown, and the condition usually persists for life. Wryneck is sometimes considered related to an underlying psychologic condition. Persons with suspected wryneck should see a physician on reaching port.

Treatment

Heat from hot compresses or a hot water bag should be applied to the painful area of the neck. The area should be massaged gently two or three times daily. For pain, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency.

Chapter V

Treatment of Diseases

Section H

NEUROLOGICAL and MENTAL DISORDERS

ALCOHOLISM

The Alcohols

THE ALCOHOL FAMILY is made up of many chemical compounds. Ethyl alcohol, the best known member of the group, is the substance that makes fermented and distilled liquors intoxicating. Other alcohols commonly used are methyl alcohol, denatured alcohol, and isopropyl alcohol.

Methyl alcohol, also known as wood alcohol or methanol, is a fuel and has industrial usage as a solvent. Wood alcohol is a poison that *must not be taken internally* because it can cause blindness or death. (See p. III–65.)

Isopropyl alcohol is used as a rubbing alcohol and often as a disinfectant. It is poisonous if taken internally.

Denatured alcohol is ethyl alcohol to which other materials (denaturants) have been added to make it unfit for drinking. ***For external use only,*** it can be applied to the skin as a disinfectant and cooling agent.

Ethyl alcohol (also known as grain alcohol or ethanol) is given special attention in this chapter because it is the active intoxicant of alcoholic beverages. It is a colorless, flammable liquid that is classed as a food because it supplies calories, but has no nutritive value. It acts as an irritant, antiseptic, drying agent,

sedative, anesthetic, and hypnotic agent. It is a pain-reliever which, unlike other analgesics such as aspirin, reduces pain by putting the brain to sleep. Ethyl alcohol is considered a drug because of the profound effects it has on the central nervous system. Like barbiturates and narcotics, it causes addiction.

Definitions

Alcoholism is a progressive chronic illness characterized by habitual excessive drinking which interferes with an individual's mental and physical health, and all aspects of his personal life. It is one of four major health problems in the United States, and the number one drug abuse problem. When untreated, alcoholism becomes progressively worse and might eventually result in death.

Alcohol Abuse refers to the isolated or continued habit of drinking in excess of dietary and social customs.

Alcohol addiction is a physiological dependence upon alcohol and there is a pathological craving for it. The body tolerates increasing amounts of alcohol. Withdrawal symptoms begin when the amount of alcohol available to body tissue is reduced in one who is addicted to alcohol.

The *alcoholic* is a person who has the illness of alcoholism. The person has lost the ability to control voluntarily the amount of alcohol consumed. To satisfy his body's craving, the alcoholic's daily consumption grows steadily.

The *problem drinker* is a person who has not lost the ability to control his consumption of alcohol. The use of it, however, frequently harms his health, relations with his family and others, and his job performance.

Alcohol in the Body

Unlike other foods that require slow digestion, alcohol is absorbed rather quickly into the bloodstream, directly through the walls of the stomach and the small intestine. The blood carries it to all body tissues, including the brain where it has an immediate effect. The liver slowly changes the alcohol into carbon dioxide and water. A small amount of it goes out through the lungs, skin, and kidneys. If alcohol is consumed faster than the body can dispose of it, its concentration in the blood increases and acts as a depressant or anesthetic on the central nervous system.

Initially alcohol seems to produce feelings of stimulation. Alcoholic "numbing" of the judgment center of the brain, which controls our inhibitions and restraints, makes one feel buoyant and exhilarated. Continued drinking on a given occasion increases the percentage of alcohol in the bloodstream. This causes depression of various areas of the brain that affect judgment, emotions, behavior, and physical well-being.

Alcohol abuse generally causes nutritional deficiences and acts as a direct poison. The combination of malnutrition and tissue injury may cause brain damage, heart disease, diabetes, ulcers, cirrhosis of the liver, and muscle weakness.

Sudden death may occur: (1) when the individual has ingested so much alcohol that the brain center which controls breathing and heart action is depressed to a fatal level; (2) when some other depressant drugs, as sleep preparations, are taken along with alcohol; (3) during an accident (one-half of all fatal traffic accidents involve the use of alcohol); or (4) as a result of suicide or murder (many self-inflicted deaths as well as homicides involve the use of alcohol).

Once the user is addicted to alcohol, withdrawal symptoms occur when it is not available to body cells. As alcohol addiction begins, these symptoms may be relatively mild and include hand tremors, anxiety, nausea, and sweating. As dependency increases, so does the severity of the withdrawal syndrome and the need for medical assistance to cope with it.

Management of Patients in Alcoholism

One should think of alcoholism as consisting of three separate conditions: *alcohol intoxication, acute withdrawal state,* and *chronic alcoholism.* Emphasis will be placed mainly on the first two conditions as chronic alcoholism does not lend itself to treatment aboard ship.

Acute Intoxication

Episodes of excessive drinking may be manifested as mild drunkenness or serious drunkenness (stupor or coma).

Mild Intoxication

Mild intoxication usually is self-limiting and its treatment requires only cessation of drinking alcoholic beverages and rest. The victims may show poor control of muscles, poor coordination, double vision, flushing of the face, bloodshot eyes, and vomiting. Behavior varies greatly. It is hard to predict what an intoxicated person will do next. He may cry bitterly, show unexplained happiness, change moods rapidly, or just pass out. Inappropriate behavior, as urinating in public and loud or abusive speech, also is common. Occasionally an intoxicated individual exhibits marked excitement and/or combativeness, and restraints may be needed.

It is impossible to walk off an excess of liquor. Alcohol is metabolized by the body at a constant rate regardless of activity. For example, if a man is needed at once on deck or in the engine room, black coffee, a cold shower, and fruit juice may make him feel better but his reaction time still will be slowed. He will be a wide-awake drunk instead of a sleepy one.

Treatment

For hangover symptoms of jitters, tremulousness, coated tongue, thirst, nausea, and severe headache, the patient should be allowed to remain as quiet as circumstances on the ship will allow. A single dose of an antacid may help the nausea. One or two cups of salted tomato juice and a glass of fruit juice, sipped slowly, also may help. Acetaminophen 600 mg may be given every four hours by mouth for headache, if it can be retained without vomiting.

Serious Intoxication

If a very large amount of an alcoholic beverage is taken in a short period of time, especially if taken on an empty stomach, serious acute intoxication may develop. Symptoms are drowsiness that might progress rapidly to coma; slow snoring breathing; blueness of the face, lips, and fingernail beds; involuntary passage of urine or feces; dilated pupils; and rapid weak pulse.

A suspected alcoholic stupor or coma represents a medical emergency. The signs or symptoms of drunken stupor are much like those of such conditions as insulin shock or diabetic coma (see p. V–21 on these two opposite conditions that may cause unconsciousness in diabetics), stroke, poisoning with other drugs, some kinds of food poisoning, and brain injury. A person may have an odor of alcohol on the breath and yet be suffering primarily from a condition unrelated to drinking. The fruity or sweet odor of the breath in *diabetic coma* may be mistaken for alcohol. (Compare columns 6 and 13 of Table 2–2, p. II–8.) In diabetic coma, the onset usually is slower than in alcoholism and rapid, deep breathing almost always is present. This distinction is very important because *diabetic coma requires prompt and aggressive treatment.* (See p. V–20.) The head should be checked for signs of injury, the pupils of the eyes for equality of size and moderate dilation (in stroke the pupils usually are unequal and nonreactive to light) and the temperature. The patient's clothing or wallet should be checked for identification cards or tags (see p. II–10) that might identify medical problems that need special medical attention, as allergies or diabetes. The individual's shipmates should be questioned on whether the patient might have taken drugs, had been injured, or overexposed to fumes or poisons. Personal effects should be checked for drugs if indicated.

Treatment

On the chance that the coma could be due to low blood sugar, as in an *insulin reaction,* an intravenous infusion of dextrose 5% and sodium chloride 0.45% solution should be started while waiting for medical advice by radio. The volume of the IV infusion to be given should be checked among other treatment considerations. If an insulin reaction is suspected and there is no one aboard ship who is trained to administer intravenous infusions, glucagon 1 mg should be given intramuscularly while waiting for medical advice by radio.

If the patient in an alcoholic stupor has not vomited and can be kept awake long enough to swallow, he should be given a large quantity of warm water (500 ml or more) to stimulate vomiting. Tickling the back of the patient's throat with a blunt object such as a spoon will stimulate gagging. The patient's head should

be held over a basin in such a position that the person will not aspirate and choke on the vomited matter or have it interfere with breathing. Strong coffee should be given and an ampul of aromatic ammonia crushed and administered by inhalation every 15 minutes as needed. Because warmth is essential, the patient should be put to bed and covered.

The patient's airway should be kept clear by placing him on his side; then on alternate sides frequently to avoid accumulation of secretions. The unconscious patient should not be allowed to sleep on his back, because a deepening of stupor or coma may cause choking on the tongue or vomitus. The condition of the patient should be observed often.

Acute Withdrawal Toxic State

After a prolonged period of heavy drinking, acute withdrawal symptoms usually begin 24 to 48 hours after the intake of alcohol has stopped.

A continuing series of symptoms accompany withdrawal following any cessation of intake of alcohol. They only may be mild as tremor, weakness, sweating, increased reflexes, and gastric upset. However, they may become severe in nature such as severe shaking, convulsions, and progress to the severe alcohol withdrawal syndrome, delirium tremens (DTs).

Impending Delirium Tremens (DTs)

Before a case of DTs is fully developed, often there are a few days of worsening withdrawal symptoms—a warning that DTs are coming. Symptoms may include in various combinations, sweating, flushing, insomnia, elevated temperatures, and odd behavior, which may stop briefly when the victim's attention is directed toward it. Recognition of these symptoms as warnings, followed by prompt treatment, often will prevent a deterioration of the condition and full-blown delirium tremens. *The alcoholic's withdrawal state is a life-threatening emergency.* The value of early recognition and treatment cannot be overemphasized.

Treatment

General supportive care is vital. Because of the risk of convulsions (seizures), the patient must be observed frequently. He should be protected from extreme heat or cold. Liberal quantities of water, sweetened fruit juice for glucose depletion, and well-salted tomato juice should be offered frequently.

The patient's pulse, blood pressure, and temperature should be taken every four hours. Efforts should be made to allay the patient's fears with reassurance and a careful explanation of procedures. Nightmares, illusions, and hallucinations often are reduced if the patient is placed in a well-lighted room, and in the presence of others rather than in isolation and restraints. If restraints are needed to prevent the patient from hurting himself or others, they should be applied carefully. Thick padding should be placed around the wrists and ankles of the patient and the extremities tied to the side of the bunk. A sheet may be wrapped over the chest, under the arms, and fastened below the bunk. The patient in restraints should be watched carefully to avoid injury.

In treating impending or actual DTs, it is necessary to use medications that will be adequate substitutes to satisfy the body's craving for alcohol. Two such drugs are paraldehyde and diazepam. The first drug of choice is paraldehyde given orally. When withdrawal symptoms are observed, prompt treatment with paraldehyde by mouth should be initiated. It stops the minor symptoms and may be relied upon to prevent the occurrence of the severe withdrawal symptoms of delirium tremens.

Aluminum hydroxide with magnesium hydroxide oral suspension 15 to 30 ml, given just prior to administering the paraldehyde, should help the patient to retain it. Giving the paraldehyde in iced fruit juice may make it more palatable to the patient.

For an adult under 45 years of age paraldehyde 10 ml by mouth should be given every four hours during the first 24 hours, every six hours during the next 24 hours, and finally, single doses at bedtime for two days. *Patients 45 years and over* should receive the paraldehyde every six hours during the first 24 hours.

During the first 24 hours, if there is difficulty in rousing the patient, the next dose of paraldehyde should be withheld and medical advice by radio obtained.

If the patient has *not* completely recovered after 24 hours of treatment with paraldehyde, one should assume that there are complications. The schedule of paraldehyde dosage for the first day's treatment should be continued while an intensive revaluation is initiated.

Diazepam may be used in place of paraldehyde. This drug should be considered if there is a chance that alcohol might be present in the patient's body when the withdrawal symptoms become evident within several hours after the last drink.

Initially, diazepam 10 mg should be given intramuscularly. An intramuscular dose may be repeated in two to four hours, if necessary. Then 5 mg should be given by mouth every four hours, as long as needed. If the patient is restless and cannot sleep, pentobarbital sodium 100 mg may be given by mouth once at bedtime.

Alcoholic Convulsive State (Rum Fits)

Treatment

One of the primary objectives in treating an alcoholic convulsion (seizure) is to prevent the patient from injuring himself or others. He should be placed on his side, tight clothing loosened, and air passages kept open. It is important to see that the patient does not inhale vomitus or fluids into the lungs. To prevent the patient from biting or swallowing his tongue, a gauze-covered tongue depressor should be inserted carefully between the teeth, with the tongue pulled forward, under the tongue depressor. To interrupt a convulsion, diazepam 10 mg should be given carefully and slowly intravenously. If this is not practicable, it should be administered intramuscularly. Medical advice by radio must be sought at once. The treatment outlined for impending DTs (see p. V–69) may be followed.

Chronic Alcoholism

The chronic alcoholic usually has a dependence on alcohol. He uses alcohol in larger quantities and at inappropriate times when compared with the people around him. The need or craving for alcoholic drinks may be so strong that he will drink unusual things as shaving lotion or paint remover.

There are varying degrees and patterns of chronic alcoholism. Some alcoholics go on periodic sprees, but between these they drink little or no alcohol. Others drink regularly day by day for long periods. The amount of trouble an alcoholic may cause on a ship varies. If the spree drinker imbibes only when ashore between trips, he may remain an effective seaman. On the other hand, if he has a binge while standing watch, it will be a problem to everyone. Similarly not everyone who drinks regularly, even in large amounts, shows serious signs of drunkenness.

Treatment

Aboard ship all a medical attendant can do for chronic alcoholism is to treat a particular complication as it arises. For serious complications, the patient should be referred for shore care as soon as a convenient port is reached. If the patient is extremely agitated or suicidal, he should be watched carefully.

Regular habits of hygiene, work, eating, recreation, and rest should be encouraged. Chapters of *Alcoholics Anonymous*, found in U.S. ports, provide programs to help these patients.

Convulsions (Seizures)

A convulsion is an involuntary, violent spasmodic contraction, or series of contractions of many muscles. There may be prolonged muscular rigidity or alternating paroxysms and relaxations (jerking movements). Either type may be alarming to watch. A convulsion, like a chill, fever, pain, or constipation, is not a disease but an indication that something is wrong.

Convulsions may be part of such diseases and conditions as stroke, chronic alcoholism, poisoning from strychnine and lead, chronic kidney disease, epilepsy, injury (especially fracture of the skull), malaria, neurotic disease, and tetanus.

Treatment

During the seizure, treatment is largely symptomatic and should be aimed at protecting the patient from harming himself. (See Epilepsy, p. V–78.) After the convulsion, a careful search should be made for the associated cause, if this is not already known. The patient should

be questioned carefully to uncover any leads that may point to any of the diseases or conditions stated previously. If the patient seems to be quite ill or has repeated convulsions, medical advice by radio should be sought.

Delirium

Delirium usually is a temporary mental disturbance characterized by confusion, excitement, seeing imaginary sights or hearing voices (hallucinations), and by various degrees of physical restlessness. Delirium may take the form of a fairly quiet restlessness wherein the patient fidgets and mutters to himself for hours on end; or it may take the form of wild, noisy, and violent actions.

Delirium may be due to mental disease; to poisons that accumulate from certain systemic infections as kidney diseases; or to drug and poison intoxication caused by a variety of agents as lead, carbon monoxide, narcotics, and some medications. Delirium may appear in chronic alcoholism or it may accompany exhaustion, chronic illness, or high fever, and follow severe injury. Delirium may be induced by exposure to a change of environment or inability to adapt to new experiences.

The characteristics of the *low muttering type of delirium* are constant or occasionally disconnected and irrational speech, restless impulses, disturbing dreams, attacks of weeping or excitement, impaired mental and muscular power, involuntary urination and defecation, and frequently, plucking at the bedclothes. When restlessness is present, the patient continually tries to get out of bed, and not infrequently attempts to escape. This type of delirium may be present in all acute infectious fevers, especially in typhoid fever.

In the *violent type of delirium* usually associated with toxic conditions due to uremia, alcoholism, and poisoning by drugs, there is wild maniacal excitement. At different times, the patient may be noisy or quiet, violent or calm. He is difficult to control always and usually is insensible to his surroundings. His speech is rapid and incoherent or irrelevant, eyes open and staring with pupils usually dilated, and face flushed. A homicidal mania may develop suddenly.

Treatment

A delirious patient never should be left unattended. Even when the symptoms appear mild, constant observation is required. Only liquid or injectable medicines should be given. Food or nourishment should be taken slowly at regular intervals. If urination is voluntary, one should make sure that it takes place regularly. If urination does not occur at least once in every eight hours, the fact should be reported promptly in medical consultation by radio. An accurate record should be kept of the patient's condition. Other patients should be prevented from coming near him. Nothing with which the patient might injure himself or others should be accessible to him. The medical attendant always should have at hand the means to restrain a delirious patient quickly.

Treatment should be symptomatic. The case should be reviewed carefully to determine the cause of the delirium. Medical advice by radio should be obtained.

Frequently patients in delirium are so disoriented (unaware of the environment) that they neither feel hunger nor know what to do with food when it is offered to them. This type of individual must be fed and if necessary coaxed to eat. The patient may refuse food entirely and all efforts to encourage eating may fail. If able and willing to feed himself, the food should be cut before giving the tray to him. *Never put knives, forks, and glassware on a mentally disturbed patient's tray.* If possible, food should be served on a paper plate, beverages in a paper cup, and the patient should eat with a spoon.

Patients who are irrational often are not aware of the urge to urinate or to have a bowel movement, so they may soil the bunk. Bedsores develop quickly if the patient is allowed to lie in a wet bunk. If the patient passes only a small amount of dark yellow and odorous urine, he should consume more liquids. If no urine is passed and the bladder is distended, measures should be tried to get the patient to urinate. (See p. VII–23.)

It may be necessary to restrain the patient. One should try to calm him and explain in simple terms what is going on. Effort should be made repeatedly to reassure him. He never

should be left alone, even for a moment. Attendants should be changed as infrequently as possible and only essential visitors should be permitted. Precautions to prevent suicide should be observed. (See Mental Depression, p. V–81.) The room should be kept evenly lighted at all times because delirium usually is worse in the dark or in twilight. The source of light should be placed to avoid casting strange shadows.

Medication may be helpful but it must be carefully used. Sedation at times will increase disorientation and excitement. (See Intoxication, p. V–68 and DTs, p. V–69.)

If both soothing actions and medication fail to quiet the patient, mechanical restraint may have to be used as a last resort. Then minimal force should be applied.

Mechanical restraints may be improvised from bedsheets. In mild cases a top sheet, well-pinned under the mattress at the sides and foot of the bed, will help to control the patient and keep him from leaving his bunk. If this is insufficient, one sheet may be folded or rolled and placed across the patient's legs and fastened to the side rails of the bunk, or beneath the mattress, or to the mattress itself. One or two sheets should be placed across the patient's shoulders. These sheets should be arranged to prevent the patient's leaving the bunk without tying him down too tightly, restricting his circulation, interfering with his respiration, or in any other way injuring him.

A sideboard is a simple form of restraint that is the length of the bunk and 18 inches wide. The board should be padded with blankets and secured on the side of the bunk at the head and foot. Its chief value is to prevent the patient from falling out of the bunk.

Leather or cloth cuffs applied to the wrists and ankles may be necessary. The wrists and ankles should be padded with cotton or other soft material before these restraints are applied. The wrists and ankles should be secured to the sides of the bunk in a comfortable position. Care should be taken that the restraints are not so tight they will interfere with circulation. Restraints should be released periodically and the extremities rubbed to stimulate circulation.

A mummy restraint sometimes is used to control the entire body while the patient is being transported from one place to another, or while he is receiving a treatment about the head or face. Armpits and groins should be padded with cotton. Except for the head, the body should be wrapped mummy-fashion in a sheet, blanket, or large piece of canvas. Because it immobilizes the entire body, the mummy restraint should be applied only briefly and removed when it is not essential. Other forms of restraint might be used, if necessary.

It should be remembered that mechanical restraints are dangerous, tend to antagonize or irritate the patient, and should be used only when absolutely necessary. These should be applied only with the permission of the Master of the ship. Restraining appliances should not be placed within reach of the patient's fingers or teeth, or where they might cause pressure or discomfort. These devices should not interfere with the patient's breathing. Constant supervision of restrained patients must be maintained.

DRUG ADDICTION

Definitions

Drug Addiction may be defined as the compulsive use of habit-forming drugs.

Drug Dependence is a state of psychological or physical need to continue to use a drug. Certain drugs cause only a psychological dependence, as amphetamines. Other drugs such as narcotics (heroin, codeine, methadone) and barbiturates cause both psychological and physical dependence.

Habituation is the psychological desire to repeat the use of a drug intermittently or continuously for emotional reasons.

Introduction

When drug dependence occurs, both tolerance and withdrawal symptoms can be present. As a person develops tolerance, he requires a larger and larger amount of the drug to produce the same effect. When the use of the addicting drug is stopped abruptly, withdrawal symptoms occur. These vary widely depending on the drug.

Not all character changes related to drug abuse appear detrimental, at least in the initial stages. For example, while using amphetamine a usually bored sleepy person may be more alert and thereby improve his performance. A nervous, high-strung individual on barbiturates may be more cooperative and easier to manage. What must be looked for are not merely changes for the worse, but any sudden changes in behavioral expressions which become routine for an individual. The causal factor may be drug abuse.

Signs which may suggest drug abuse include sudden and dramatic changes in discipline and job performance. Drug abusers also may display unusual degrees of activity or inactivity, and sudden and irrational flare-ups involving strong emotion or temper. Significant changes for the worse in personal appearance may be a cause for concern. Often a drug abuser becomes indifferent to his appearance.

There are other, more specific signs that should arouse suspicions, especially if more than one is exhibited by a single person. Among them are furtive behavior about actions and possessions (fear of discovery); sunglasses worn at inappropriate times and places (to hide dilated or constricted pupils); and long-sleeve garments worn constantly, even on hot days, to hide needlemarks.

Prevention

This section is directed primarily toward emergency first aid for drug addiction and abuse that might occur at sea. However, it is important to stress that steps can be taken long before the emergency occurs to lessen the likelihood of drug abuse ever occurring in the first place.

It is known that heavy drug use frequently stems from boredom and lack of absorbing leisure-time activities. Thus, the Master can take precautions to provide opportunities aboard ship as alternatives to boredom. Among these are group and individual activities that contribute to potential skills and the social and emotional growth of the crew. Also, these may include a variety of recreational and learning experiences that might be provided for crew members during off duty hours. A good ship's library, activities in arts and crafts, or a small woodworking room can be helpful. Film programs including psychologically oriented films and hobby films, programmed learning courses, language lessons, travel lore, contests, bingo, basic astronomy, expertly guided group discussions, and meditation sessions can contribute toward creating a more lively and involving climate aboard ship.

Drugs of Abuse Classified

Drugs of abuse fall into five main classes: narcotics, depressants, stimulants, hallucinogens, and solvents (as glue).

Narcotics

The drug abuser deeply under the influence of narcotics usually appears lethargic, drowsy, or displays symptoms of deep intoxication. Often the pupils of the eyes are constricted and fail to respond to light.

Some individuals may drink paregoric or cough medicines containing narcotics. The medicinal odor of these preparations often is detectable on the breath. Other narcotic abusers inhale narcotic drugs such as heroin in powder form. Sometimes, traces of this white powder can be seen around the nostrils. Constant inhaling of narcotic drugs makes nostrils red and raw.

For maximal effect narcotics usually are injected directly into a vein. The most common site of this injection is the inner surface of the arm at the elbow. After repeated injections, scar tissue (tracks) develops along the course of such veins. Because of the easy identification of these marks narcotic abusers usually wear long sleeves at odd times. Females sometimes use makeup to cover marks and some males get tattooed at injection sites. When drugs are injected under unsterile conditions, there is a hazard of transmitting hepatitis, malaria and other tropical diseases, and blood poisoning.

The narcotic abuser may be detected by noting the presence of the equipment ("works" or "outfit") used in injecting narcotics. Because anyone injecting drugs must keep the equipment handy, it may be found on his person, or hidden nearby in a locker, washroom, or any place where temporary privacy may be found. The characteristic instruments and accessories consist of a bent spoon or bottle cap, a small ball

of cotton, syringe or eyedropper, and a hypodermic needle. All are used in the injection process.

The small ball of cotton usually is kept after use because it retains a small amount of the narcotic that can be extracted, if the abuser is unable to obtain additional drugs. The bent spoon or bottle cap used to heat the narcotic is easily identifiable because it becomes blackened during the heating process.

Treatment of Acute Narcotic Intoxication

Medical advice by radio should be obtained. With all narcotics, including opium, heroin, meperidine, morphine, methadone, and hydromorphone, overdosage produces similar clinical states—depressed respiration being one of the most critical. Severely depressed respiration requires manual or mechanical artificial respiration. (See p. IV–1.) Even mildly depressed respiration calls for administration of naloxone, a narcotic antagonist.

Naloxone is now the drug of choice for treating acute narcotic intoxication. It is a pure narcotic antagonist with no respiratory depressant effects. (See naloxone hydrochloride injection, p. VI–33, and the package insert on dosage and frequency.)

Heroin, morphine, and similarly abused short-acting narcotics have a 6 to 12 hour duration of action and the antagonist must be readministered during this time. It is crucial to remember that methadone has a much longer duration of action, 24 to 72 hours. Therefore, a patient with acute methadone intoxication must be observed carefully and treated again as needed with naloxone, every two or three hours for up to three days.

Withdrawal Syndrome

A person with light physical dependence may show few genuine symptoms of withdrawal. Complaints may result from anxiety or from a bid for additional medication. Adolescent addicts rarely show significant evidences of withdrawal. Heavy narcotic addiction may require gradual detoxification, which is not feasible aboard ship. The withdrawal syndrome develops about eight to twelve hours after the last dose. During the first 12 to 24 hours of withdrawal, it may be necessary to administer a low dose of a short-acting narcotic, as 10 mg morphine sulfate intramuscularly once or twice to prevent severe withdrawal symptoms.

Depressants (Including Barbiturates)

Acute intoxication with barbiturates and other central nervous system (CNS) depressants, including chlordiazepoxide, diazepam, glutethimide, and ethchlorvynol resembles acute alcoholic intoxication except that there is no odor of alcohol on the breath. Persons taking depressants may stagger or stumble. The depressant abuser frequently falls into a deep sleep. In general, he lacks interest in activity, is drowsy, and may appear to be disoriented.

Treatment

The treatment for depressants consists mainly of supporting the cardiovascular and respiratory functions. Maintenance of the airway is of crucial importance. Stimulant drugs generally are not effective in restoring normal respiration. Oxygen and intravenous fluids may be needed. If the patient is conscious, gastric lavage will be helpful in removing any unabsorbed drug from the stomach. (See p. III–62 on poisoning by central nervous system depressants.) The effects of glutethimide intoxication may persist or recur for several days, despite aggressive management.

Management of Barbiturate Withdrawal Syndrome

When a patient has been diagnosed as physically dependent on a depressant drug of the barbiturate type, the immediate concern is the management of the withdrawal syndrome. This syndrome is very similar to but more life-threatening than narcotic drug withdrawal because of the danger of potentially fatal convulsions. Other serious complications of abrupt withdrawal from barbiturates include hallucinations, delirium, and coma. Close supervision is essential. Medical advice by radio should be obtained.

Aboard ship, probably the optimum that can be achieved is to withdraw gradually the drug of addiction. Dependence on depressants of the barbiturate type is usually a chronic relapsing disorder. Long-term treatment is best in a shore-based facility where continued sup-

portive counseling can be maintained with the patient.

Unlike withdrawal from other narcotics, withdrawal from barbiturates and other hypnotic drugs may be associated with cardiovascular collapse and death. Even when withdrawal symptoms are mild, they may signal impending convulsions.

Treatment

Gradual reduction of the dosage of the drug over a period as long as two weeks may be the only pharmacologic treatment needed for patients mildly or moderately addicted to barbituates.

Convulsions, delirium, and high fever should be treated as emergencies. The patient should be given 200 mg of pentobarbital sodium injection intramuscularly at once. Additional doses of 100 mg may be given at hourly intervals until he is asleep, and then as required to maintain sleep for 8 to 12 hours. *Before giving the additional doses, medical advise by radio should be obtained for addiction to barbiturates.*

Stimulants

The behavior of the abuser of stimulants, as amphetamine and related drugs, is characterized by excessive activity. The stimulant abuser is irritable, argumentative, appears extremely nervous, and has difficulty sitting still. In some cases the pupils of the eyes will be dilated even in a bright lighted place.

Amphetamine has a drying effect on the mucous membranes of the mouth and nose with resultant bad breath that has a specific odor. Because of dryness in the mouth, the amphetamine abuser licks his lips to keep them moist. This often results in chapped and reddened lips, which in severe cases may be cracked and raw. Dryness of the mucous membrane in the nose causes the abuser to rub and scratch his nose vigorously and frequently to relieve the itching sensation.

Other observable effects include incessant talking and chain-smoking. The person abusing stimulant drugs often goes for long periods of time without sleeping or eating and usually cannot resist letting others know about his fasting and sleeplessness.

Treatment

The treatment of an overdose from an amphetamine-type stimulant is complex, so medical advice always should be sought by radio. It is important to try to determine if the patient has been abusing barbiturates along with stimulants, as this would influence the treatment required.

Life-threatening toxic doses of stimulants may cause abnormally high body temperatures above 102°F (38.8°C). This should be treated by immersion of the patient's body in cool water. A patient who has ingested an overdose *orally* should be forced to vomit or gastric lavage should be instituted (see p. III–62) to remove any unabsorbed drug.

Sedation as diazepam 10 mg may be required orally or by injection; *but this should be administered only upon medical advice by radio.*

Hallucinogens

It is unlikely that persons who use hallucinogenic drugs such as LSD will do so while at work or in other than a recreational time period. Such drugs usually are used in a group situation under special conditions designed to enhance their effect. Persons under the influence of hallucinogens usually sit or recline quietly in a dream or trance-like state. However, the effect of such drugs is not always joyful. On occasion users become fearful and experience a degree of terror which may cause them to attempt to escape from the group or engage in violent action.

Hallucinogenic drugs usually are taken orally. They are found as tablets, capsules, or liquids. Users put drops of the liquid into beverages, on sugar cubes, crackers, or even small paper wads or cloth. It is important to remember that the effects of LSD may recur days or even months after the drug has been taken.

Treatment

Although LSD (lysergic acid diethylamide) is the most commonly used and widely known hallucinogen, others seen frequently include mescaline (the active ingredient of the peyote cactus which originates in Mexico) and psilo-

Table 5–1. **Narcotics and Other Drugs Commonly Abused—Identification Guide**

Narcotic (Drug) and Slang Name	Physical Symptoms	Look for	Dangers
AMPHETAMINES AND METHAMPHETAMINE (Bennies, Pep Pills, Dexies, Copilots, Wake-ups, Lid Poppers, Hearts, Uppers)	Aggressive behavior, giggling, silliness, rapid speech, confused thinking, no appetite, extreme fatigue, dry mouth, bad breath, shakiness, dilated pupils, sweating, licks lips, rubs and scratches nose excessively, chain smoking, extreme restlessness, irritability, violence, feeling of persecution, abcesses	Pills, tablets, or capsules, of varying colors, chain smoking, syringes	Hallucinations, death from overdose, speeds rate of heartbeat, may cause permanent heart damage or heart attacks, loss of weight, addiction, mental derangement, suicidal depression may accompany withdrawal
BARBITURATES (Barbs, Blue Devils, Goof Balls, Candy, Yellow Jackets, Phennies, Peanuts, Blue Heavens, Downers, Red Birds)	Drowsiness, stupor, dullness, slurred speech, drunk appearance, vomiting, sluggish, gloomy, staggers, quarrelsome	Tablets or capsules of varying colors, syringes	Unconsciousness, coma, death from overdose, physiological addiction, convulsions, or death from abrupt withdrawal
BARBITURATE-LIKE DRUGS **Chloral Hydrate,** (Knock-Out Drops, Joy Juice, Peter, Micky Finn (mixed with alcohol))	Similar to Barbiturates	Capsules (blue and white, rust, and red), and syrup	Gastric distress is common. Circulatory collapse may occur.
Benzodiazepines Chlordiazepoxide, Diazepam, Flurazepam and others (Downers)	Similar to Barbiturates	Librium capsules (Green & Black)—Valium Tablets (white 2mg, yellow 5 mg blue 10 mg)—Dalmane capsules (red & yellow)—Other sizes or brands may appear differerently—	
Methaqualone (Luds, Sopors, Qs, the Lovedrug, Quads)	Similar to Barbiturates—also vomiting, hypotension, pulmonary edema	Tablets (White, Green, Pink); Capsules (Light and Dark Blue; Light Green and Dark Green)	Especially dangerous in combination with alcohol
COCAINE (Leaf, Snow, Speedballs)	Muscular twitching, convulsive movements, strong swings of moods, exhilaration, hallucinations, dilated pupils	White odorless powder	Convulsions, death from overdose, feelings of persecution, psychic dependence
HALLUCINOGENS LSD (Acid, Sugar, Big D, Cubes, Trips) DMT (Businessman's High) STP	Severe hallucinations, feelings of detachment, incoherent speech, cold sweaty hands and feet, vomiting, laughing, crying, exhilaration or depression, suicidal or homicidal tendencies, chills, shivering, irregular breathing	Cube sugar with discoloration in center, strong body odor, small tube of liquid	LSD causes suicidal tendencies, unpredictable behavior, brain damage from chronic usage, hallucinations, panic, accidental death, persecution feelings
MARIJUANA (Pot, Grass, Reefers, Locoweed, Mary Jane, Hashish, Tea, Gage, Joints, Sticks, Weed, Muggles, Mooters, Indian Hay, Mu, Griffo, Mohasky, Gigglesmoke, Jive)	Sleepiness, talkative, hilarious mood, enlarged pupils, lack of coordination, craving for sweets, erratic behavior, loss of memory, distortions of time and space, intellectual deterioration	Strong odor of burnt leaves, or rope with characteristic sweetish odor, small seeds in pocket lining, cigarette paper, discolored fingers, pipes	Inducement to take stronger narcotics, anti-social behavior

Table 5–1. **Narcotics and Other Drugs Commonly Abused—Identification Guide** (Continued)

Narcotic (Drug) and Slang Name	Physical Symptoms	Look for	Dangers
NARCOTICS Heroin (H, Horse, Scat, Junk, Snow, Stuff, Harry, Joy Powder) Morphine (White Stuff, Miss Emma, M, Dreamer)	Stupor, drowsiness, needle marks on body, watery eyes, loss of appetite, bloodstain on shirt sleeve, "on the nod," constricted (small) pupils that do not respond to light, inattentive, slow pulse and respiration	Needle or hypodermic syringe, cotton, tourniquet (string, rope or belt), burnt bottle caps or spoons, glassine envelopes, traces of white powder around nostrils from sniffing or inflamed membranes in nostrils, small capsules containing white powdered substance	Death from overdose, mental deterioration, brain, heart, and liver damage, embolisms, infections from use of dirty needles and equipment
Cough Medicine that contains Codeine Sulfate or Opium (Schoolboy) Paregoric	From large doses: drunk appearance, lack of coordination confusion, excessive itching. Small doses exhibit little effect.	Empty bottles of cough medicine or paregoric	Causes addiction
THE VOLATILE SOLVENTS (Model Airplane Glue, Lighter Fluid, Gasoline, Paint Thinner, Many Aerosols, Household and Commercial Fluids)	Violence, drunk appearance dreamy or blank expression, odor of glue or other solvents on breath, excessive nasal secretion, watering of eyes, poor muscular control, delirium, hallucinations	Tubes of glue, glue smears paper or plastic bags, handkerchiefs, empty aerosol cans, lighter fluid containers, gasoline cans	Damage to lung—brain—liver, death from suffocation or choking, anemia

Source: National Institute on Drug Abuse, Public Health Service, U.S. Department of Health, Education, and Welfare

cybin (the active ingredient of a variety of Mexican mushroom). Two synthetic substances, DMT (dimethyltryptamine) and DOM (dimethoxyamphetamine), also known as STP (implying Serenity, Tranquility, and Peace) are abused frequently. When taken in sufficient dosage, any of these substances will produce a temporary state of insanity or "a trip" with illusions (incorrect perception of objects) and hallucinations (a sensory perception without objective stimulus, such as seeing, hearing, feeling, tasting, or smelling something that does not exist). Other abnormal experiences with hallucinogens include a feeling of great excitement and insight, nausea, sweating, tremors, and uncoordination.

Most experienced drug users can control these abnormal feelings and enjoy them. The bad trip that requires skilled help occurs when the user, often inexperienced, suffers a loss of control and is overwhelmed with anxiety, terrifying sights and sounds, delusions of persecution, extreme depression and the belief that he is going out of his mind.

The treatment for a bad trip is basically the talk-down technique. This involves nonmoralizing comforting support from an experienced individual aided by the limitation of external stimuli and having the patient lie down to relax in a quiet darkened area. A tranquilizer such as 10 mg of diazepam by mouth may be used three or four times daily if the talk-down technique is unsuccessful. *These patients never should be left unattended.*

Marihuana Abuse

While marihuana is pharmacologically a hallucinogen, its wide-spread use warrants separate discussion. The user of marihuana (pot) is unlikely to be recognized unless he is heavily under the influence at that time. In the early stages the drug acts as a stimulant and the user may be very animated and appear almost hysterical. Loud and rapid talking with bursts of laughter are common at this stage. In the later stages of the drug's effect, the user may seem to be in a stupor or sleepy.

Marihuana smokers also may be identified by their possession of these cigarettes which

often are called sticks, reefers, or joints. A marihuana cigarette often is rolled in a double thickness of brownish or off-white cigarette paper. Smaller than a regular cigarette, with the paper twisted or tucked in on both ends, the marihuana cigarette often contains seeds and stems. Marihuana is greener in color than regular tobacco.

Another clue to the presence of reefers is the way in which they often are smoked. Typically, such smoking occurs in a group situation. The smoke is inhaled deeply and held in the lungs as long as possible. The odor of marihuana is an additional clue to its use. The odor, similar to that of burnt rope, is readily noticeable on the breath and clothing.

Treatment of the Marihuana Abuser

Acute adverse reactions to marihuana are rare. Bad trips usually subside quite rapidly. Prolonged reactions, if they occur at all, usually are seen in the patient who is smoking marihuana for the first time. These prolonged reactions are more likely to occur in unstable personality types. Such severe reactions require treatment with a tranquilizer, as diazepam, administered as in the treatment of hallucinogen reactions (see p. V–75.) The more common milder reactions respond to the same talking-down techniques used for LSD and other stronger hallucinogens. Sedation also can be given to allow the patient to "sleep it off."

Solvent Abuse

The glue or solvent sniffer usually retains the odor of the inhaled substance on his breath and clothes. Irritation of the mucous membranes in the mouth and nose may result in excessive nasal secretions. Redness and watering of the eyes often are observed. The user may appear to be intoxicated or lack muscular control. He may complain of double vision, ringing in the ears, vivid dreams, even hallucinations. Drowsiness, stupor, and unconsciousness may follow excessive use of the substance.

Treatment of Acute Intoxication from Solvents

Acute intoxication from the inhalation of solvents is of fairly short duration so treatment rarely is needed. If necessary, the patient should be treated by using the talking-down technique. The patient and others should be protected from possible hostile outbursts. Everyone should avoid whispering or creating other misleading stimuli.

The condition resulting from inhalation of toxic solvents tends to be chronic and resistant to therapy. Laboratory assessment of possible organic damage to bone marrow, liver, kidneys, and the central nervous system is important. The chronic solvent abuser should receive prompt professional medical attention, particularly if signs of toxicity occur.

EPILEPSY
(And Other Convulsive Seizures)

Epilepsy is a chronic nervous disorder characterized by muscular convulsions with partial or complete loss of consciousness. The seizures are brief, recur suddenly at irregular intervals, and usually are followed by several hours of confusion, stupor, or deep sleep. Epilepsy has been called "falling sickness" because the patient falls suddenly and usually makes no effort to protect himself from injury. Epilepsy may vary from mild to severe. In the mild form, there is momentary loss of consciousness or confusion and slight muscular twitching without falling. In the severe form, the patient suddenly falls as if struck by an overwhelming blow.

An epileptic may have a seizure anytime and frequently may have some forewarning of the attack. There will be a brief moment in which to sit or lie down, or otherwise prepare for the seizure. This forewarning or aura may be almost any strange feeling, as an unusual feeling of depression, excitement, pain in the limbs or abdomen, trembling, or a strange odor. From previous experience, the patient will know that these symptoms will be followed almost immediately by a seizure.

Even if this brief forewarning or aura does not occur, the patient suddenly will emit a peculiar cry and fall down. He may strike the floor or any object in his way, cut or bruise himself badly, or break a bone. His body usually becomes stiff and rigid for a short time, during which he stops breathing and becomes

blue or purple in the face. This phase of the seizure is followed by generalized spasmodic convulsions of the entire body with jerking of the arms, legs, and head, contortions of the face, and foaming at the mouth. The eyes may roll back and forth, but there is no feeling in them and they can be touched without the patient flinching. He may bite or chew his tongue or cheeks so that froth in the mouth becomes bloodstained. Urination or bowel movements may occur involuntarily.

Usually, after several minutes, the convulsion subsides. The patient may regain consciousness or fall into a deep stuporous sleep that may last for several hours. When he awakes, he may be confused or very grouchy and ill-tempered. He probably will have no recollection of the attack. Occasionally, seizures recur rapidly with fever, rapid pulse, and rapid breathing. This condition, known as status epilepticus, sometimes terminates in death from exhaustion. Otherwise, an epileptic attack seldom is fatal.

It is obvious from the suddenness and nature of the seizures, that epileptics should not be permitted to go aloft. Also, they never should be allowed in the engine room where there are moving parts of machines on which they might fall or other places of potential danger. A person known to be an epileptic generally should be advised not to accept employment at sea.

Treatment

Treatment during the Convulsion—Bystanders should try to prevent the patient from hurting himself and should make him as comfortable as possible. His movements should not be restrained completely, unless he is in danger of falling from a high place or otherwise injuring himself in some unusual manner. To keep him from biting or chewing his tongue, something should be inserted carefully between his teeth, such as a twisted handkerchief or a pencil wrapped in cloth. Hard objects never should be inserted. A coat or pillow should be placed under his head and his threshing legs and arms covered with a blanket to prevent self-injury during the convulsion. Medicines should not be given by mouth. Artificial respiration will not be needed because the phase during which the patient ceases to breathe usually is very short. After the seizure while dazed, exhausted, or asleep, the patient may be carried or helped to his bunk. Enough bedding should be placed over the patient to keep him comfortably warm. Usually, he will sleep for some time. However, if he is awake and restless he may be given one dose of phenobarbital 60 mg by mouth.

Treatment between Attacks—There is little that can be done at sea to treat epilepsy, except to keep the patient from injuring himself during an attack, and to prevent recurrences by routine use of the patient's prescribed medication.

The severity and frequency of attacks may be reduced by certain medications such as phenobarbital and phenytoin sodium. *Medical advice by radio should be obtained on the dosage of these two medications.* If the patient states that a physician told him he was an epileptic and was placed on phenobarbital and/or other preventive drugs, these medications in the prescribed dosages may be given from the ship's medicine chest during the voyage, if the patient's supply has been depleted.

Treatment of Convulsions Similar to Epilepsy

These usually lack the preceding aura (the beginning of a seizure as recognized by the patient) and have no history of recurrences over a considerable period of time. They may occur in otherwise normal persons as a result of a severe acute illness, brain injury, meningitis, nephritis, insulin injections, high blood pressure, paralytic stroke, brain tumor, toxins, cyanide poisoning, and strychnine poisoning. Such convulsions should be treated as outlined for epilepsy.

MENINGITIS

(Spinal or Cerebrospinal)

Meningitis is an inflammation of the sheath-like membranes (meninges) that cover the brain and spinal cord. Several different organisms may be carried by the blood to the meninges, lodge there, multiply, and eventually cause inflammation (meningitis). The most common forms of this condition are tubercular meningitis, pneumococcal meningitis, gonoc-

coccal meningitis, staphylococcal meningitis, and meningococcal meningitis.

The symptoms of these forms of meningitis are similar. For emergency diagnosis and treatment at sea, there is no practical need to differentiate among them, except to point out that epidemic cerebrospinal meningitis (meningococcal meningitis) is extremely infectious. Thus one should assume that any form of meningitis is contagious until proven otherwise. *All cases suspected of being meningitis should be handled as though contagious.*

The germ that causes cerebrospinal meningitis usually is present in nose and throat secretions of those suffering from the disease, in carriers who have recovered from it, or those who have been in contact with patients with the disease. The germs are spread directly by person-to-person contact, and indirectly by contact with articles freshly soiled with nose and mouth discharges of patients or carriers. Epidemics of cerebrospinal meningitis (meningococcal) are related to overcrowding and close contacts as those commonly found in barracks, camps, and ships.

About a week after exposure, fever, severe headache, nausea, generalized muscle and joint pains, backache, and rigidity of the neck may develop. Symptoms like those of a common cold may or may not be present. There may be vomiting, irritability, delirium, or convulsions. The patient may become drowsy and difficult to arouse. He may become unconscious. There may or may not be a generalized skin rash—flat, pinhead-sized red spots that have the appearance of bleeding into the skin. These spots may or may not have a small reddish or yellow blister in the center. The patient often lies on his side facing away from the light, with knees drawn up and head thrown back to lessen the painful rigidity of the neck and back.

The most important diagnostic findings for meningitis are (1) fever and prostration, (2) severe headache, and (3) rigidity of the neck. These always are present and a diagnosis cannot be made without them.

Prevention of Spread

The patient should be isolated for at least 14 days after onset of meningitis. All who care for the patient must follow carefully the isolation nursing technique (see p. VII–19). This includes wearing a gown and mask in the sickroom, and washing the hands each time after giving care.

Crewmen should be advised about the danger of meningitis. They should be told to wash their hands before eating. Also they should cough and sneeze into handkerchiefs to avoid spreading the disease by droplet infection, in case they might have meningitis in an early form before symptoms appear. If possible, the space should be increased between individuals in sleeping quarters. Living and sleeping quarters should be well-ventilated. Chilling, fatigue, and undue mental and physical strain will increase susceptability to the disease and should be avoided, if possible, by those exposed to the infection.

Treatment

Medical advice by radio should be obtained on the treatment of meningitis. 2.4 million units of penicillin G procaine sterile suspension should be given intramuscularly every six hours, if the patient has no history of allergy to the drug. After four days, further medical advice by radio should be requested on whether oral penicillin may be given.

Good nursing care, quiet, and rest in a darkened room are important. It may take persuasion, firmness, and patience to get the patient to take the necessary medicine and fluids when he is irritable, drowsy, or delirious. If the patient cannot swallow whole tablets but is able to take fluids, then the tablets should be crushed, mixed with a little water, and fed to him with a spoon.

If the symptoms are causing severe pain or the rigidity of the back causes a great deal of distress, morphine sulfate 10 mg should be given intramuscularly. For extreme restlessness phenobarbital 30 mg may be given once or twice a day by mouth. It may be necessary to give enemas for constipation.

The amount of urine voided should be measured. Large amounts of water should be given; if equivalent amounts of urine are not being passed, it may be an indication of toxicity or of urine remaining in the bladder. If no urine is voided for 24 hours, the patient will have to be catheterized. (See p. VII–23.)

MENTAL DEPRESSION

If anyone feels blue or depressed, looks very unhappy, or his actions suggest extreme despondency or depression, the person's condition should not be ignored. The matter should be investigated especially if it involves a normally cheerful person who shows a sudden drastic reversal in attitude or actions. In order to gain his confidence, the patient should be approached in a kindly, tactful manner that will lead into a frank discussion of his problems. Discovery of a serious depression, or even a mild one surely will help the patient and it might avert possible annoyance or tragedy aboard ship.

Four kinds of depressions are described hereafter: mild, severe, stupor, and agitated depression. Common symptoms of each type are listed. There may be other symptoms, and those listed may not be present in every case.

Mild Depression

A person with a mild depression may lack his usual confidence and show increased indecision about what he should do. He may be less talkative and his thinking more difficult and slower than usual. His doubts and fears may be out of place or be more severe than the occasion requires. He may complain of being worried about something which he admits is foolish but he will say, "I just can't get the thought out of my head." He may complain often of malaise, physical weakness, fatigue, headaches, and inability to sleep or eat properly.

The complaints may center on one part of the body as a continually upset stomach or heart palpitation and pain. It often is difficult even for a physician to tell whether such complaints are due to depression or whether they are due to physical illness. The purely mental symptoms of which a depressed patient may complain are very real to him and may suggest a physical illness, both to the patient and to anyone examining him. The evidence should be studied and compared with the symptoms of depression given and with the description of the physical diseases suggested by the evidence as heart trouble, tuberculosis, or high blood pressure. Medical advice by radio may be useful.

Mild depression may be due to some personal problem or misfortune, as illness in the family or concern about money. He may have a guilty conscience about some real or fancied wrong, or he may be in an early stage of some serious mental disease.

Treatment

If the depressed patient's problem is discussed with him, he may get relief. He will need sympathetic understanding, kindly tactful listening, and encouragement from those who are closely associated with him. The attendant should try to relate the present situation with similar difficulties in the patient's past life that he had overcome successfully.

It must be remembered that a depressed mental patient may try to cover up his symptoms by denying that he is depressed or has any personal problem. He may be afraid, confused, or unwilling to share his troubles. One should not try to force the patient to talk, but he should be convinced that the attendant is interested and friendly. The patient's friends or buddies should be advised not to be offended if he seems to be irritable. They should be urged to stay friendly and support him.

It must be remembered that if one is kept busy talking about other things, he will have less time for annoying thoughts. Too much time should not be spent discussing a patient's fears, but their unreality and improbability should be pointed out.

Sometimes a slight change of duties may give the patient new interests, if this can be accomplished. Added duties may renew his confidence in himself; however, too many responsibilities should not be heaped upon him.

The physical complaints of a depressed patient always should be considered. Sometimes merely receiving attention will help to reassure the individual, even if it actually does little physical good.

When port is reached, the patient should be advised to consult a physician and a social service agency, such as United Seamen's Service, Red Cross, or his union's personal service section.

Severe Depression

Succeeding attacks of depression are apt to become increasingly more severe. The patient will not look or act like his usual self. He may

slouch about with his head hanging, his facial expression may be set and gloomy, and he will seldom smile or laugh. His whole activity will be slowed down, he may look ill, and may not follow orders. This could be due either to a desire to refuse to do anything or to preoccupation with his problems.

Loss of weight and constipation are common. The patient usually sleeps poorly and wakes early without feeling rested. Sooner or later, such patients become hopeless about their problems and life in general. They develop guilt feelings and needlessly blame themselves for many things they have done or left undone. Besides feeling sinful and unworthy, the severely depressed patient may imagine at times that he or the world is unreal or that he has contracted a loathesome disease.

The patient usually knows where he is, what day it is, and does not see or hear imaginary things. This is useful in distinguishing a simple depression from other mental diseases in which the patient will have hallucinations, see objects that really are not present, hear voices when no one is speaking within his range of hearing, or smell odors that no one else can detect.

Treatment

The emergency treatment of a severe depression is the same no matter what the exact cause may be. Because a depressed patient might attempt suicide, the patient should be with someone else all of the time, if possible. If the patient is able to work, he should be assigned to a job that requires two persons. If sufficiently ill to be admitted to the sickbay, he should not be left in a room by himself. Care should be taken to assure that such observations do not become too obvious or obnoxious to the patient, who may resent them.

Phenobarbital 90 mg by mouth may be given at bedtime if the patient is unable to sleep soundly. This may be repeated once, if necessary. The ship's personnel should be alerted to make sure the patient will eat enough nourishing food.

The patient should be assigned to light duty, if he is able to work at all. He should be encouraged to use his hobbies or be led into spare time occupations. Keeping him busy will reduce the time available to worry about himself. He should not be questioned too closely. Usually he will be in no condition to respond to questions that may be regarded by him as prying and objectionable. Cold or warm showers, one to three times a day, may make the patient feel better, but these should not be forced on him.

Stupor

A severe depression sometimes progresses into a stupor, which may be a symptom of other diseases. The patient may lie awake in bed, but do nothing of his own accord. He may respond very slowly to orders. Mentally dull, he may not know where he is or what day it is. His face will resemble a mask and he can think of little besides death and dying.

Treatment

Medical advice by radio should be obtained without delay for a stuporous patient. Although the patient usually lacks the energy to harm himself, precautions should be taken to prevent suicide. (See Suicide, p. V–83.) General supportive nursing care will be needed. The patient may need to be reminded of and assisted with urination, bowel movements, general cleanliness, and eating. The patient may refuse food entirely. Usually this will not be too serious because most ships will reach port before starvation itself becomes a problem. If at all possible, the patient's intake of liquids should not be reduced, especially in hot weather.

Caution—Stupor due to mental depression seldom appears without being preceded by other signs of severe depression. Other causes for stupor always must be suspected. Usually a thorough examination will uncover evidence of poisoning or drug overdose, head injury, or brain disease. At times, a depressed person may become stuporous from a secret suicide attempt.

Agitated Depression

In agitated depression the patient will be restless, sad, fearful, and apprehensive. He will be tense, pace the floor, and wring his hands. He may repeat over and over again, in an explosive manner, such words as "damn." He may become panicky. He may complain that his

"brain has rotted," that his "intestines are plugged up," that he "has no heart." He may attempt personal injury, tear his clothes, or try to destroy other articles.

Treatment

Constant reassurance is necessary for agitated depression. The patient can be told that he will be helped, that he is being protected and taken care of, and that things will be all right. Actions and attitudes of those around him can be more important than words. By acting calm, confident, and unhurried, those in attendance will have a good effect on the patient, although he may not seem to be paying attention.

Whenever possible, medical advice by radio should be obtained. Sedation with phenobarbital 90 mg orally four times daily at the direction of a physician may help. Care should be taken to see that the patient actually swallows the medication and does not save it for a suicide attempt. If medication by mouth is refused or if agitation is extreme, diazepam may be given intramuscularly.

Any stimulation should be avoided. The patient should be in a quiet place with one or two friends as attendants and allowed no visitors. (For other details of nursing care, see Delirium, p. V–71.) Physical restraint should be avoided, unless there has been or appears to be an immediate and serious danger or a suicide attempt.

SUICIDE PREVENTION

An estimated 75 percent of those who attempt suicide are seriously depressed. Most people who commit suicide had been thinking about it for some time before the act. Many people contemplating suicide do not talk about it, especially the young, elderly, and professional people; but they do go through periods of sleeplessness and general sadness. They may lose their appetite and show a loss of weight. Also they may lose interest in their work, in people, and in activities they once enjoyed.

Another suicidal signal is preparation for death. A person may begin discussing insurance policies or making a will, start giving away prized possessions.

One should take seriously every suicidal threat, comment, or act. Never be afraid to ask the person if he really is thinking about committing suicide. This will not plant the idea in his head. On the contrary, it will relieve him to know that he is being taken seriously.

One should not try to shock or challenge the person by saying, "Oh, go ahead and do it." Such an impatient remark may be hard to hold back if a person has been repeating his threats, or has been bothersome to have around. Such a challenge can be a careless invitation to suicide.

Never try to argue with the individual about whether he should live or die because this argument cannot be won. The only possible position to take is that the person *must* live. Everyone should be willing to listen to what the patient might say. The medical attendant should promise the person that everything possible will be done to keep him alive.

As soon as possible, professional help should be sought. Today there are many drugs that can help greatly to relieve depression. Medical advice by radio always should be obtained.

MENTAL DISORDERS ABOARD SHIP

Many different forms of mental disease have been named and described and each can vary in severity. Even physicians with special training in psychiatry may have difficulty in classifying a particular case. This is one reason why mental illness is discussed in this book under the headings of common symptoms which can be seen by all. (See Delirium, Mental Depressions, Drug Addiction.)

The term "insanity" no longer is used in medicine. In everyday use it refers to speech, thinking, or behavior that is strange or inappropriate. However, the word, "insanity" continues to have social-legal significance. It refers to a person who, because of mental illness, may not be responsible for his actions, may not be able to manage his own affairs, or may be a danger to himself or others.

There are people who do not have a specifically diagnosed mental illness, but cause confusion, extra work, irritation, puzzlement, sorrow, and even danger to those around them.

Naturally enough, these persons do not make good sailors, but due to our present state of medical knowledge and current laws and customs, it is not possible to prevent many of these men from shipping.

In contrast to the sort of person just mentioned, some few persons do have mental diseases, but are skillful and reliable workers at sea. As time goes on, fitness for sea duty may depend less on whether one has some named illness, but more on his actual ability to do a job. For this reason, a careful description of a man's behavior at work, even before any future breakdown, is important to the physician who will examine him later.

There are two other common symptoms of mental disease that may be seen on shipboard. At times, a person will become unusually quiet and withdrawn for no known reason. He may move very slowly or awkwardly, seem dazed or preoccupied, and be unable to carry out instructions or reply to questions. If he speaks, what he says may not have much to do with what is going on around him. He may even sit or lie entirely motionless for long periods, although not really stuporous or in a coma. He may show no interest in food.

The other common symptom of mental disease is an abnormal suspiciousness and irritability. It can be very hard to decide at times whether this person is just a complainer or a loner, or whether he is mentally ill. The distinction is easy if he speaks about hearing the voices of angels or seeing in his room relatives who are long dead. It is not as easy, however, if he speaks about things that could be true, as not getting overtime because his supervisor doesn't like him; or that he is being discriminated against because he belongs to a racial or religious minority.

Treatment

If any of these groups of symptoms for mental disease are serious enough to interfere with a person's work, he should be taken off duty. The person should be observed closely so that he does not harm himself or anyone else. One may learn much by showing an informal friendly interest in such people. Attention should be given to meals, general hygiene, and the bodily comfort of anyone under observation. A careful record of the person's behavior should be kept for guidance during later diagnosis and treatment.

To calm the patient, phenobarbital, 90 mg by mouth, should be given three times daily. It seldom is wise to force medication because the patient may have strange beliefs about it. For example, he may believe the drug is for the purpose of changing him into a woman or that it is poison.

Medical advice should be obtained by radio. The patient should be examined by a physician at the earliest opportunity.

NEURITIS

Neuritis is a disease of a single nerve, of two or more nerves in separate areas, or of many nerves simultaneously. Usually it is degenerative in nature and rarely is accompanied by inflammation. The disease is characterized by pain and tenderness along the affected nerve area. There may be burning, tingling or numbness, and the area will be sensitive to pressure. When the sciatic nerve, which extends from the buttocks down the back of the thigh to the lower leg, is affected, the condition is *sciatica.* Intense shooting pains on one side of the face is called *facial neuralgia.*

Some causes of neuritis are poor physical condition, chronic local infection as abscessed teeth or diseased tonsils, straining or stretching or other injury to the nerves, pressure on a nerve area from a tumor or overgrowth of bone, and inadequate diet. Neuritis is prominent in beriberi and pellagra, which are "vitamin deficiency" diseases. It may be associated with chronic diseases such as arthritis and diabetes.

Treatment

To determine the underlying cause of neuritis, a complete medical checkup is necessary. Emergency treatment at sea usually is confined to symptoms. The most useful emergency treatment is rest for the affected part and applications of heat. A neuritic arm can be kept at rest in a sling. In severe sciatica the patient must stay in bed.

For severe pain, aspirin or acetaminophen 600 mg and codeine sulfate 30 mg should be given by mouth and repeated every four hours,

as necessary. The codeine sulfate should be discontinued and aspirin only given, as soon as the pain is under control. Codeine sulfate should not be continued for more than four days without specific orders from a physician. The patient should get plenty of liquids. A substantial varied diet of easily digested food may help to build up the patient's general health and may improve the neuritic condition, if vitamin deficiency is a contributing cause.

STROKE
(Cerebrovascular Accident)

A stroke occurs when the blood supply to some part of the brain is interrupted. This generally is caused by:

- A blood clot forming in the blood vessel (cerebral thrombosis).
- A rupture of the blood vessel wall (cerebral hemorrhage).
- Obstruction of a cerebral blood vessel by a clot or other material from another part of the vascular system which flows to the brain (cerebral embolism).
- Pressure on a blood vessel, as by a tumor.

A stroke usually occurs suddenly, without warning signs. In more severe cases, there is a rapidly developing loss of consciousness and a flabby, relaxed paralysis of the affected side of the body. Headache, nausea, vomiting, and convulsions may be present. The face usually is flushed but may become pale or ashen. The pupils of the eyes often are unequal in size. The pulse usually is full and rapid and breathing is labored and irregular. The mouth may be drawn to one side and often there is difficulty in speaking and swallowing.

The specific symptoms will vary with the site of the lesion and the extent of brain damage. Mild cases may experience no loss of consciousness and paralysis may be limited to weakness on one side of the body.

The outcome of a stroke will depend upon the extent of brain compression or damage. When fatal, death usually occurs in two to 14 days and seldom at the time of the attack. Most patients with first or second attacks recover, but recurrent attacks are likely. The extent of permanent paralysis will not be determined for at least six months.

Treatment

Good nursing care is essential after a stroke. The patient should be undressed as gently as possible and placed in bed with the trunk of the body, shoulders, and head elevated slightly on pillows. An attendant should be assigned to stay with the patient. Extra care should be taken to prevent the patient from choking on saliva or vomitus. The patient's head should be turned to one side so fluids can flow out of the mouth. Mucus and food debris should be removed from the mouth with a piece of cloth wrapped around a finger. If there is a fever, cold compresses should be applied to the forehead. If the patient is conscious and able to swallow, liquid and soft foods may be given. To prevent bedsores the patient should be kept clean and turned to a different position in bed every three to four hours. Bowel regularity should be maintained.

Medical advice by radio must be obtained, and early evacuation to a hospital should be anticipated. (See Convulsions, p. V–78.)

Chapter V

Treatment of Diseases

Section I
RESPIRATORY DISEASES

ALLERGIC REACTIONS

CERTAIN INDIVIDUALS MAY DEVELOP an allergy or hypersensitivity to substances that are harmless to most people. An allergic individual is sensitive to allergens, which are substances that enter the body by being inhaled, swallowed, injected, or by contact with the skin. They may come from bacterial or fungal infections in the body. A manifested allergy may be relatively mild, as a light attack of hay fever or a brief episode of hives; or it may be severe and very serious, as an acute attack of asthma, a stubborn or uncomfortable skin rash, or sudden collapse.

When an allergen reaches a sensitive area of the body, the tissues react irritably or even violently to produce symptoms of allergy. The allergic irritation may occur in almost any organ or tissue of the body with symptoms determined by the location. When the nose and throat are the organs involved, an individual may have sneezing, stuffiness, running nose, and itching of the throat and eyes. The symptoms represent hay fever (allergic rhinitis). If bronchial tissues are affected, there is wheezing, coughing, and difficult breathing (asthma). When the skin is affected, eczema or hives appear. If the digestive tract is involved, there may be nausea, vomiting, indigestion, abdominal pain, diarrhea, or cramping. An allergic reaction also may affect the brain, causing headache.

Countless substances can cause allergic reactions. A drug such as penicillin is a common cause of drug allergy. An allergy to penicillin may be manifested by hives, skin rash, or swelling of various body parts; or at times, a reaction that resembles serum sickness (malaise, fever, and possibly arthritis occurring about 10 days after the penicillin is given). Drugs which may be associated with allergic reactions include antibiotics, serums, laxatives, sedatives, and tranquilizers. Eczematous dermatitis may result from contact with the skin by metals, dyes, fabrics, resins, drugs, insecticides, industrial chemicals, perfumes, rubber, plastics, and the components of certain plants (as poison ivy or the oil pressed from the shell of the cashew nut).

Serious allergic reactions may occur following bee, wasp, yellowjacket, and hornet stings. Airborne substances which may produce allergy include pollens from weeds, grasses, trees, and plants; house and industrial dusts;

mold spores; animal danders (skin and hair shed by domestic or wild animals); feathers found in pillows; kapok; and insecticide sprays or other vapors. In some instances, foods (such as eggs, milk, nuts, wheat, shellfish, chocolate, and fruits) may cause acute or chronic symptoms. There are many other possible allergens, including sunlight, heat, cold, and parasites.

Avoidance of the allergenic substance or substances offers the greatest hope of permanent relief from an allergic disease. In drug allergy, once the diagnosis is suspected or established, the allergenic agent should be stopped and another drug substituted. In allergic contact dermatitis from cashew shell oil, fuel oil, paints, tar, and others, the patient should try to protect his skin from direct and indirect contact with the agents, even if he has to change occupations. Patients allergic to an inhaled substance (as feathers or animal danders) may be unable to avoid them. Airborne pollens are difficult to avoid. A physician may be able to desensitize the patient by a series of injections.

For the temporary relief of asthma, eczema, hay fever, and hives, refer to these conditions elsewhere in the text.

Anaphylactic Shock

Anaphylactic shock is a severe allergic reaction often fatal that produces shock and collapse. It commonly occurs after an injection of a medication such as penicillin. This reaction can occur after contact with almost any allergen. Prevention is best. *Before giving injections or administering any medication, the patient should be asked if ever he had an allergic reaction in the past.* If he did, medical advice by radio should be gotten. A skin rash or other unusual side effect following treatment is a warning to avoid the same medicine in the future.

Treatment

For anaphylactic shock, the patient should be placed in a prone position. The following medications should be administered intramuscularly, immediately: 1:1000 epinephrine hydrochloride injection 0.5 ml, diphenhydramine hydrochloride 50 mg, and hydrocortisone sodium succinate 100 mg. The three medicines should be given from separate syringes and at different body sites. The epinephrine hydrochloride injection may be repeated in 20 minutes, if the patient's condition remains serious or becomes worse. Obtain medical advice by radio.

ASTHMA

Asthma is characterized by a sudden and widespread narrowing of the smaller air passageways in the lungs. The patient becomes acutely short of breath and a wheezing will be heard during expiration. Most patients have a history of many previous attacks. It is important to differentiate asthma from other causes of shortness of breath, especially that from heart failure.

Extrinsic asthma often is an allergy to pollen, dust, and food, among others, and is common in children. *Intrinsic asthma,* which is due to lung infection, is more common in adults. Asthma often develops for no apparent reason. The disease may be related to emotional upset, climate changes, and minor upper respiratory viral infections. Episodes may start and end suddenly with or without therapy.

Treatment

A bedside vaporizer or turned-on hot shower should be used to humidify the air that is inhaled by the patient with asthma. To offset possible dehydration, the patient should be encouraged to drink plenty of fluids, especially water. More palatable liquids as fruit juices and hot tea may be helpful.

Medications to enlarge the air passageways (bronchodilators), such as ephedrine sulfate 25 mg should be given by mouth every four to six hours. If the patient is unduly nervous or unable to sleep, phenobarbital 15 mg to 30 mg should be given by mouth every four to six hours.

For acute asthmatic episodes, 0.3 ml to 0.5 ml aqueous epinephrine hydrochloride injection 1:1000 should be given *subcutaneously,* and if necessary repeated in 60 minutes.

For an acute asthmatic episode, an aminophylline suppository 500 mg by rectum may be used. Use of a suppository should be restricted to only one or two occasions because repeated usage might cause severe rectal irritation.

Antibiotics may be given in acute asthma, because most adult asthma patients will have a bronchial infection that may or may not be apparent. Medical advice by radio should be obtained as to whether antibiotics are indicated.

If all or some of the above procedures are used, most acute asthma attacks can be treated adequately. (See Bronchitis, p. V–89.)

BLEEDING

(Respiratory and Digestive Tracts)

It sometimes is difficult to differentiate between bleeding from the respiratory and digestive tracts. Blood from the nose, throat, or lungs may be swallowed; thereafter, it will have the same appearance in the stool as blood from the digestive tract.

To find the source of blood discharged from either the mouth or rectum, the factors that follow must be considered.

The blood may be bright red, leaving no doubt that it is blood; or it may not look like ordinary blood. If vomited and partly digested, the blood will appear dark and granular like coffee grounds. The vomitus mixed with partly digested food and other stomach contents makes for further confusion. Also, blood may give a stool a black appearance like tar.

There may be much or only a little bleeding. Sputum may be only bloodstreaked, as in some mouth diseases. A teaspoonful or more of bright blood may be coughed up or vomited, if the trouble is farther down the throat, in the lungs, or in the stomach. A pint or more of partly digested material like coffee-grounds may be vomited. Blood in the stool may be so scant that the only means of detection will be by means of the occult blood test materials that are included in the section on *surgical equipment, instruments, and supplies.* (See p. VI–56.) Such bleeding may be caused by intestinal parasites or gastric ulcer. Or there may be smaller or larger amounts of bright red blood usually from a local disease of the anus or rectum, as piles or a tumor. Digested blood in tarry stools usually occurs in large amounts.

Bleeding from the digestive or respiratory tract usually does not produce pain or other obvious signs or symptoms, except those associated with considerable loss of blood, as faintness, weakness, dizziness, pale moist skin, and rapid thready pulse. Internal bleeding is not uncommon in certain diseases, as stomach ulcer, typhoid fever, cancer, or tuberculosis. Patients suspected of having such diseases should be watched for signs of bleeding. Sometimes in apparently healthy persons, internal bleeding is the first sign of these diseases.

Tables 5–2 and 5–3 list some of the usual characteristics of respiratory and digestive tract bleeding.

The cause of the bleeding will determine treatment. Internal hemorrhage will be indicated by a feeling of faintness, weakness, or dizziness, pale moist skin, and rapid pulse. Such a patient immediately should be placed in bed and kept at absolute rest for several days at least. Sedation by injection should be given to a patient who is mentally disturbed, excited, or restless. Diazepam 5 mg may be given intramuscularly and repeated in four hours, if indicated. If sedation appears to be needed beyond this period of time, medical advice by radio should be obtained.

If the bleeding is from the stomach, the patient should be treated as if he had an ulcer. (See p. V–30.)

In all cases of bleeding from the lungs or the gastrointestinal tract, the patient should see a doctor at the next port of call. Unless the bleeding stops promptly, air evacuation may be necessary. Medical advice by radio should be gotten at once.

SHORTNESS OF BREATH

(Dyspnea)

Shortness of breath is not a disease in itself. It may occur normally after exercise, but it may be a symptom of several diseases. The patient may confuse shortness of breath with fatigue, cough, or the production of excess sputum. These conditions must be distinguished from shortness of breath. Usually, the breathing will be rapid and shallow, but patients can feel short of breath with either a rapid or a slow respiratory rate. The normal rate of respiration is 15 to 20 breaths per minute.

Some causes of shortness of breath are chronic heart disease, pneumonia, pleurisy, fever, severe asthma, and emphysema. As a

general rule, chronic heart disease usually is associated with fluid (edema) in the legs. Breathlessness in such patients is relieved by sitting or elevation of the head of the bed. Shortness of breath due to lung conditions is not associated with edema.

Treatment

Treatment is directed at the cause of the shortness of breath, most commonly heart or lung disease. Professional medical care generally is required.

BRONCHITIS

Bronchitis is an inflammation of the membrane that lines the bronchial tubes. It should be suspected when a patient coughs, produces sputum, and no obvious cause for these symptoms can be found. A good history and physical examination will help to determine the patient's illness. Without X-ray equipment, adequate evaluation aboard ship may be difficult.

Acute bronchitis

Usually a self-limited disease, acute bronchitis is characterized by the onset of cough and sputum production. This may be due to viruses, bacteria, chemical irritation (smoke, fumes, gases), and in some cases an allergic state (asthmatic bronchitis). The disease frequently begins as a common cold.

Chronic Bronchitis

Chronic bronchitis is present when a cough persists with production of sputum for three months in each of two consecutive years. The principal causes are prolonged irritation of the bronchial mucosa, usually due to heavy cigarette smoking and recurrent bronchial infection.

Bronchitis Due to Viruses

A runny nose and heavy white gelatinous sputum usually are identified with viral bronchitis.

Treatment

The following are recommended: (1) phenylephrine hydrochloride nasal spray should be sprayed into each nostril every four hours; (2) diphenhydramine hydrochloride* 25 mg may be given by mouth every four to six hours; (3) humidification of air if possible (bedside vaporizer); and (4) for the cough, dextromethorphan hydrobromide with glyceryl guaiacolate syrup may be given, one to two teaspoonfuls every three or four hours.

Bronchitis Due to Bacteria

A bacterial infection can complicate viral bronchitis. It usually is associated with heavy cigarette smoking, emphysema, or chronic bronchitis. A runny nose usually is not present and the sputum almost always is yellow and thick.

Treatment

Before giving any medication, the patient should be asked if he is allergic to it.

The treatment consists of (1) humidification of air (bedside vaporizer or turned-on hot shower); (2) for the cough dextromethorphan hydrobromide with glyceryl guaiacolate syrup may be given, one teaspoonful every three to four hours; and (3) for fever, aspirin 600 mg by mouth every three or four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency. Antibiotic treatment usually is indicated. Ampicillin 250 mg should be given by mouth four times daily. If the patient is sensitive to penicillin, erythromycin 500 mg or tetracycline 500 mg should be given by mouth four times daily.

Antibiotic therapy should be continued until the sputum is normal in volume and appearance. *If antibiotic therapy seems indicated beyond ten days, medical advice by radio should be obtained.*

Bronchitis Due to Irritation

Treatment

The patient should be removed from the source of the irritation. The patient and others who enter his room should not be allowed to smoke. In severe smoke inhalation, oxygen therapy is helpful.

*Because diphenhydramine hydrochloride may cause drowsiness or dizziness, the patient should be excused from working at heights or close to moving machinery, while taking the medication.

Table 5-2.
Bleeding from the Mouth

Color and Appearance	Amount and Method	Most likely Source	Cause	Remarks on Treatment
Bright red	Blood-streaked sputum	Local: From mouth tissues, gums, throat, back of nose	Pyorrhea, cold in head, laryngitis, pharyngitis	Mouthwash or other symptomatic treatment. See dentist at first port of call.
Bright red	Coughed up (teaspoonful or more)	Lungs	Tuberculosis of lung, cancer	Symptomatic treatment (see below). See doctor at first port of call.
Bright red	In sputum or phlegm. Coughed up, frothy, bubbly, pink or red	Lungs	Heart disease	Symptomatic treatment (see Heart Disease). See doctor at first port of call.
Brown (like prune juice)	In phlegm. Coughed up (½ to 1 teaspoonful)	Lungs	Pneumonia	See Pneumonia.
Bright red	Vomited (cupful or more)	Stomach	Hemorrhage from ulcer, cancer, ruptured vessel. Probably very recent or still continuing.	Symptomatic. Use ice bag.
Dark brown (like coffee grounds)	Vomited (usually considerable in amount, one pint or more)	Stomach (old blood, mixed with partly digested food)	Stomach or duodenal disease, or blood swallowed after extraction of tooth. Bleeding probably occurred 2 or 3 hours previously, and has stopped or lessened in amount	Ulcer, cancer

*Coughed-up blood may result from a paroxysm of coughing or it may come from the back of the throat without any great amount of coughing, until the blood actually is in the mouth.

Table 5-3.
Blood in Stools

Color and Appearance	Amount and Method	Most likely Source	Cause	Remarks on Treatment
Bright red	Streaked feces	Lower end of digestive tract, hemorrhoids, anal fissure	Constipation (hard fecal matter that injures mucous membrane), local injuries, fissures, piles, cancer	If present with every stool and not reduced by cathartics which action stops, see doctor at first port of call.
Bright red	Teaspoonful or more	Lower end of digestive tract	Ulcer or tumor of rectum, ulcerative colitis, dysentery, typhoid	See doctor at first port of call.
Tarry	Abundant	Upper part of digestive tract	Stomach or duodenal ulcer, gastritis, liver, kidney or heart disease, typhoid, dysentery, tumors, cancer	Symptomatic treatment. See doctor at first port of call.

Bronchitis Due to Allergy

Allergenic bronchitis occurs to individuals with a history of asthma, wheezing, or prior respiratory infections (asthmatic bronchitis).

Treatment

If the patient is wheezing, a bronchodilator such as ephedrine sulfate 25 mg may be given by mouth four times daily. If this causes undue nervousness or inability to sleep, phenobarbital 15 mg may be given by mouth at the same time. Oral intake of fluids, especially water should be encouraged.

COLDS
(Common Cold, Coryza, Rhinitis)

Few illnesses cause so much loss of working time and personal discomfort as the common head cold. Its symptoms are familiar: runny nose, red and watery eyes, malaise, aching muscles, chilliness, and often a sore scratchy throat and cough. A cold lowers a person's resistance to other diseases and permits secondary infections. Symptoms of a cold may precede many communicable diseases, so medical attendants should watch carefully for other symptoms of these diseases. Diphtheria, measles, and septic sore throat may start as a cold. A cold may lead to bronchitis, pneumonia, and middle ear disease.

Treatment

Unless symptoms develop that indicate a more serious disease, the treatment for colds should be symptomatic. The patient should be kept in bed until the temperature is normal and he feels reasonably able to function. Aspirin 600 mg should be given by mouth every three or four hours to help relieve the symptoms. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency. Phenylephrine hydrochloride 0.25% nasal spray may be used every four hours for two or three days. An antihistamine as diphenhydramine hydrochloride 25 mg may be given by mouth every four to six hours, as needed. Because the diphenhydramine hydrochloride may cause drowsiness or dizziness, the patient should be excused from working at heights or near moving machinery, while taking the medication.

The patient should force fluids as water and fruit juices. He should be advised to blow his nose gently to avoid forcing infectious material into the sinuses and middle ear. When symptoms subside for 24 hours, the patient should get out of bed but restrict activities for a day or two before returning to full duty.

COUGH

Coughing is a sudden forceful expulsion of air from the lungs usually in a series of efforts. Although annoying, a cough helps to get rid of phlegm (sputum) that builds up in air passages.

Coughs are productive or non-productive (dry). The sputum may be purulent (with pus), copious or scanty, thick or thin and fluid, clear or frothy, odorless or foul-smelling, blood-streaked or frankly bloody. A cough may be acute or chronic, occasional or persistent, slight or severe, painful or painless.

Coughing is not a disease in itself but a symptom. An acute cough usually is caused by an infection of the upper respiratory system. A productive cough that lasts for more than three months frequently means that the patient is suffering from chronic bronchitis, even though he does not recognize that he is ill until he becomes short of breath. Because of cigarette smoking and air pollution, thousands of people become victims of chronic bronchitis and eventually emphysema. Chronic cough with fever suggests more serious conditions, such as tuberculosis, pneumonia, or even carcinoma of the lung. Chronic cough without fever may indicate heart disease, bronchial asthma, or bronchiectasis (infection and degeneration of the air passages).

The following generalities may be helpful:

Simple bronchitis usually follows a viral infection or "cold" that is accompanied sometimes by a sore throat, a raw heavy feeling behind the breastbone, and a dry cough that changes into a productive cough.

Pleurisy is manifested by a severe pain in the chest wall that is aggravated by deep breathing.

Asthma occurs in allergic individuals, usually starting at a young age in a family with a history of hay fever, hives, or asthma. It is detected by a wheezing sound during breathing, more pronounced on exhaling than inhaling.

With *pneumonia,* usually there is fever, often a productive cough with pus or sputum, and pain in the chest.

Tuberculosis of the lungs may be associated with slight but prolonged cough. Fatigue may be an early symptom, followed by sweats and loss of weight.

Cancer of the lung has become alarmingly frequent in persons who have been heavy smokers (a pack of cigarettes a day for twenty years or so). Early diagnosis of cancer is difficult but cough, spitting blood, persistent fever, or a weight loss may be early warnings.

When a cough accompanies an acute illness, especially when there is fever, the medical attendant should obtain a good history from the patient. After examining the patient and his sputum, the medical attendant should decide on the most likely cause of the illness and prepare a carefully worded request to *obtain medical advice by radio.*

Treatment

The cough due to a cold and viral bronchitis is treated symptomatically with aspirin, phenylephrine hydrochloride 0.25% nasal spray, and humidifiers as described under Bronchitis. For a cough, one 5 ml teaspoonful dextromethorphan hydrobromide with glyceryl guaiacolate syrup should be given every four hours as needed.

For treatment of a cough due to pneumonia, pleurisy, asthma, and tuberculosis, see the appropriate headings.

As a hygienic measure, the patient should be given disposable tissues to cover his mouth when coughing. All used tissues should be put into a paper bag for appropriate disposal. Antihistamines are not indicated.

Specific treatment should be directed to the cause of the illness. The patient's pulse, temperature, and rate and depth of respiration should be noted.

See Asthma, p. V–87; Bronchitis, p. V–89; Pneumonia, p. V–95; Pleurisy, p. V–95; and Tuberculosis, p. V–97.

HAY FEVER

Hay fever is a common allergy that affects the upper respiratory tract. Generally caused by pollen, it is a seasonal disease that is prevalent in the spring, late summer, and fall. Symptoms resemble those of an aggravated head cold as congestion of nose and eyes, sneezing and asthma. (See Asthma, p. V–87.) An attack may last from four to six weeks during which the patient may lose a lot of weight.

Treatment

At sea, the treatment is entirely symptomatic. Patients with hay fever usually are familiar with the symptoms and with the effects of their various remedies. Usually they do not have to go to bed or stop their regular work. More severe symptoms may be treated with diphenhydramine hydrochloride 25 mg by mouth four times a day. Because the medication may induce drowsiness as a side effect, all precision work, potentially hazardous work, or standing watch should be curtailed for the patient.

HOARSENESS (Laryngitis)

This is a harsh, discordant, grating quality imparted to the voice by an abnormal condition of the larynx (voice box) or other part of the throat. Usually it is due to laryngitis, an acute or chronic inflammation of the larynx.

In *acute laryngitis* usually there is a barking cough. The hoarseness may result in complete loss of the voice for a few hours or days. Local irritation prompts frequent efforts to clear the throat. Acute laryngitis may be caused by exposure, dust and other irritants, mouth breathing, excessive smoking, overindulgence in alcohol, acute infectious disease, or an intense emotional upset.

Chronic laryngitis stems from repeated attacks of acute laryngitis, chronic disorders of nose and throat, mouth breathing, dental disease, tuberculosis or cancer of the throat, asthma, hay fever, overuse of the voice, and excessive use of alcohol or tobacco.

Treatment

In acute laryngitis with fever, chills, and toxicity, an antibiotic may be indicated. *Always make sure the patient is not allergic to the*

medication. Before administering an antibiotic, medical advice by radio should be obtained. If there is any sign of airway obstruction, medical advice by radio should be sought immediately. Cool vapor or steam inhalation is recommended with complete voice rest.

If a patient is *not* feverish, and has lost his voice from shouting or other abuse, he should rest his voice and avoid irritants such as smoking. If the hoarseness persists, patients should seek medical advice at their earliest convenience to make sure that cancer is not the cause.

HYPERVENTILATION SYNDROME (Anxiety Attacks)

The hyperventilation syndrome is characterized by abnormally prolonged, rapid, and deep breathing. It is one of the commonest nondisabling conditions seen in routine medical practice. The patient may feel very sick, tired and apprehensive, with a pounding heart and labored breathing. Fear arising from these symptoms may produce a feeling of serious illness or impending death in the patient.

A patient who possesses three or more of the following symptoms may be suffering a hyperventilation attack:

- A feeling in the top of the head that is hard to describe.
- Dizziness or lightheadedness.
- Blurring of vision.
- Dryness or bitterness of the mouth.
- Tingling of the hands or around the mouth.
- Tightness or a "lump" in the throat.
- Shortness of breath.
- Pounding of the heart.
- A feeling of great tiredness or weakness.
- A feeling of being in a dream.
- Drawing-up of the hands at the wrist and knuckles, but with straight fingers in severe attacks only.
- Fainting.

Treatment

Reassurance of the patient is the most important treatment for hyperventilation. Resting in a quiet place for a few minutes often helps. Breathing into a paper or plastic bag may assist the hysterical patient who is continually hyperventilating. Breathing at a maximal depth until satisfactory respiration is achieved may assist the type which is characterized by deep, sighing respirations. In cases that are hard to manage, diazepam 5 mg may be given by mouth twice a day for several days. If these measures are not successful, some other condition either alone or accompanying anxiety may be present. Care must be taken to see that a more dangerous condition is not overlooked. *Medical advice by radio should be obtained.*

INFLUENZA (Flu)

Influenza is an acute, infectious, respiratory disease caused by a virus. Early symptoms resemble those of an acute cold in the head. However, headache and aching or pain in the small of the back, joints, and bones are much more severe than with a common cold.

During an influenza epidemic, there is no mistaking these symptoms. However, when cases occur singly or in small groups, differentiating between influenza and the common cold, acute laryngitis, acute bronchitis, and the onset of communicable and other acute diseases is difficult, if not impossible. Influenza usually is thought of in terms of epidemics. The severity of the symptoms of epidemic influenza vary greatly. The symptoms may be so mild that few people realize they are in the midst of a potentially dangerous epidemic. During other epidemics, the disease may be complicated by pneumonia which should be suspected if the patient develops symptoms such as dyspnea (breathing difficulty), cyanosis (bluish skin), or rales (abnormal sounds that accompany breathing). A stethoscope should be used to check the chest area for rales. Other common complications of influenza are pleurisy, kidney disease, and middle ear disease.

Treatment

Influenza is a serious highly contagious disease. Prevention of the spread of the disease is an important part of treatment. *Get medical advice by radio.* The disease may be spread by

coughing, sneezing, and other methods of direct contact. The patient suspected of having influenza should be isolated from other crewmen not having similar symptoms. The principles of isolation nursing should be observed.

In epidemics, the following procedures must be carried out: The temperature of all crew members should be taken twice a day, morning and evening. A person with a fever should be put at absolute bed rest and kept there until the temperature has been normal for 24 hours.

For constipation, 30 ml of milk of magnesia should be given nightly.

For pain, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency.

In isolated cases, influenza with mild symptoms should be treated as for the common cold (see p. V–91) or any acute fever with signs of upper respiratory irritation.

Prevention

Influenza vaccines now are available that help to prevent the disease in a majority of cases, if taken early enough. Flu vaccine is most effective if it is administered one to six months before the influenza virus attacks, and if the viral strain used in the vaccine is exactly the same as the epidemic strain.

In a year when an influenza epidemic is possible, seamen should contact a Public Health Service facility or a local health department for advice about getting the correct vaccine. Prompt immunization is in order for high risk groups—as the chronically ill, heart patients, those aged 65 and over, among others.

The virus used to make the vaccine is grown in eggs. Thus, anyone with a known allergy to eggs should receive the vaccine only under special medical supervision.

NASAL CONGESTION

The acute form of nasal congestion generally is associated with the common cold, sinus infection, hay fever, or the early stages of many diseases that start with symptoms resembling those of the common cold.

Chronic nasal congestion often is associated with anatomic defects, as a deviated septum, enlarged turbinates, or unusually small nasal openings.

Treatment

To open the nasal passages phenylephrine hydrochloride nasal spray 0.25% should be used every four hours, as needed. The nasal spray should *not* be used for more than three consecutive days. For minimal congestion, no treatment may be needed. Warm steam inhalations several times daily for five to ten minutes may be used.

NOSEBLEED (Epistaxis)

Usually bleeding from the nose has local causes but it may be a warning of a serious condition elsewhere in the body.

Some local causes are direct violence as from a blow, deviation of the septum, chronic nasal infection that produces areas of diseased mucous membrane, acute colds in the head, enlarged adenoids, enlarged blood vessels similar to varicose veins, tumors, syphilis, atrophic rhinitis (characterized by foul breath), foreign bodies, and fracture of the base of the skull.

Some underlying systemic causes of nosebleed are high blood pressure, some forms of kidney and liver disease, extremes of heat and cold, overindulgence in alcoholic beverages, heart disease, and abnormal blood coagulation.

Treatment

Most nosebleeds can be stopped by simple compression of the nose. The thumb and forefinger should be gently but firmly placed on each side of the lower end of the nose and pressed together. The patient should sit upright in a chair with head bent forward. Steady pressure should be applied for at least 10 minutes and repeated, if necessary. There should be no movement while pressure is applied to the nose in order to forestall possible additional damage to the bleeding vessel. The patient should be reassured.

If bleeding persists after repeating the procedure several times, the patient's nose should be blown gently to remove clots. Then the nose should be sprayed several times with phenylephrine hydrochloride 0.25% nasal solu-

tion. The nose should be packed with strips of petrolatum gauze cut about a half inch in width. First, the lower portion of the nose should be packed and the gauze worked upward. *After the packing is completed, the attendant should make sure that both ends of the gauze protrude from the nose.* The pack should remain in the nose for at least 24 hours and the patient should rest in bed. External pressure may be applied to the nose when the pack is in place. There may be some discharge of blood and serum while the pack is in place.

If all these measures fail, medical advice by radio should be obtained, especially if the patient is elderly.

PLEURISY

Pleurisy is inflammation of the pleural membranes that line the chest cavity and surround the lungs. The disease may follow any condition that lowers the person's ability to resist infection. Often it is associated with bronchitis, pneumonia, and tuberculosis.

The onset of pleurisy usually is sudden with a cough and a sharp stabbing pain in the chest that is aggravated by breathing or coughing. If the pleura over the diaphragm are affected, rather than the pleura at the side of the lung next to the chest wall, the pain may appear as an abdominal pain possibly associated with muscle spasms and tenderness of the abdomen. It may resemble the pain caused by abdominal conditions such as gallstone colic or stomach disease. Chills and fever usually are associated with pleurisy.

Simple pleurisy should not last long. However, if the symptoms are severe, complications may be likely. The most common complication is the collection of fluid in the space between the two layers of pleurae. Fluid in this space may press against the lung and interfere with the entry of air into the organ, causing shortness of breath. In some cases pus forms in this space (empyema). A pulmonary embolism (blood clot in the lung) also can cause a pleurisy-like pain, often accompanied by blood in the sputum.

Treatment

A patient suspected of having pleurisy always should be checked for possible pneumonia. The patient should be kept in bed as long as he has active symptoms and fever. For pain, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency.

If pain is not controlled by aspirin or acetaminophen alone, oral codeine sulfate 30 mg may be given along with either of these medications every three to four hours for the first 24 to 48 hours. *Medical advice by radio should be obtained on the repeated use of codeine sulfate.*

After two or three days, if the patient does not seem to be getting better, medical advice by radio again should be obtained.

PNEUMONIA

Pneumonia is an inflammation of the terminal air sacs of the lungs and the small bronchioles leading into them. (See Fig. 1-20.) Next to bronchitis, it is the most common acute infectious disease of the lungs.

Symptoms of pneumonia are fever, chills, pain in the chest, a fast rate of breathing, and dark brown sputum (like prune juice). Pneumonia may begin in association with another disease, or it may start as a separate and distinct illness. In the first situation, it may occur as a complication of a common cold, bronchitis, serious injury, an operation, or other illness. It may be indicated by the sudden exaggeration of the symptoms of the associated disease, in addition to the usual symptoms of pneumonia. As a separate and distinct illness, pneumonia may develop suddenly without any marked symptoms of serious illness.

Treatment

Medical advice by radio should be obtained on the medication suggested below. The best possible general care must be given to a pneumonia patient. His strength must be conserved and he should be kept as comfortable and quiet as possible. He should be urged to force fluids, especially water, with lemonade, weak tea, or fruit juice. His convalescence should be a gradual return to normal activity. He should not return to work until checked by a physician.

Although not highly contagious, pneumonia is transmissible to others, so the patient should be kept in a room by himself. A paper handkerchief or toilet paper always should be used to cover the cough or catch the expectoration. The contaminated handkerchief should be burned or appropriately disposed. The general principles of *isolation technique* should be observed (see p. VII–19).

Penicillin, which is the drug of choice of most suspected cases of pneumonia, usually shortens the illness, reduces symptoms, and is lifesaving in the most serious types of disease. The patient should be given penicillin V potassium 1000 mg (four 250 mg tablets) by mouth every six hours for the first day; then 500 mg by mouth every six hours for at least five days. Some types of pneumonia do not respond to penicillin but will respond to other antibiotics. If the pneumonia is not responding to penicillin or the patient is allergic to penicillin, tetracycline 500 mg should be given by mouth every six hours.

For pain, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency. The patient should rest in bed. To avoid chest congestion, he should be encouraged to take several deep breaths every hour and to expectorate.

SINUSITIS
(Sinus Trouble or Inflammation)

During head colds or other respiratory infections, various microorganisms may pass from the nose into one or another of the sinuses, through the small opening that connects these bone cavities with the nose. When the sinuses become infected and the mucous membrane is inflamed, the condition is called *sinusitis*. When the inflammation plugs the openings that ordinarily drain the sinuses, secretions will accumulate in the sinuses causing pressure and possibly fever. (The areas of pain in sinusitis are shown in Fig. 1–7.)

Sinusitis may be a temporary condition. As the sinus infection clears, the blocked secretions drain and the swollen mucous membrane will shrink to normal. Frequently, however, the sinusitis becomes chronic, wherein there will be more or less continuous local pain or discomfort, tenderness on pressure over the affected sinus area, and a mild discharge from the nose.

Treatment

For an acute sinus attack with severe pain and fever, the patient should be put to bed and treated as described for a Common Cold (See p. V–91.) To help relieve discomfort or pain, hot, moist compresses or a hot water bag should be applied over the forehead, nose, and cheeks. Unless symptoms develop that indicate a serious disease, the treatment is symptomatic and antiinfectives such as antibiotics are inadvisable.

If sinusitis continues or recurs frequently, the patient should be advised to consult a physician at the first convenient port.

SORE THROAT

A common complaint, sore throat may be only local or it may be part of a serious illness. Laryngitis (inflammation of the voice box), tonsillitis (inflammation of the tonsils), and an abscess in the tissues of the tonsillar area are examples of localized throat conditions. Diphtheritic and streptococcal sore throat are examples with marked systemic effects. Streptococcal sore throat resembles scarlet fever but differs clinically in the absence of a skin rash.

Pharyngitis and tonsillitis are common causes of sore throat and frequently accompany an ordinary head cold. Pharyngitis may result from excessive use of the voice; too much tobacco or alcohol, or mouth breathing.

Pharyngitis may be part of an acute disease, such as influenza, scarlet fever or measles. If caused by a streptococcus, the resulting "strep" or septic sore throat may be very sore, with high fever and prostration.

Tonsillitis may lead to an abscess of the tonsil. This condition is indicated by swelling on one side of the back of the throat, great pain, and difficulty in opening the mouth and in swallowing. These symptoms are relieved immediately when the abscess breaks, which reduces pressure and pus drains into the throat.

To inspect the throat, a good light should be used with a tongue depressor (or the handle of a spoon) to hold the tongue down. Views will be needed of the tonsils to the right and left, and of the back wall of the pharynx. If the tonsils are reddened, irritated-looking and enlarged, tonsillitis or pharyngitis is present. Small sores on the tonsils will indicate only a simple tonsillitis. If the sores are covered with a grayish membrane and are difficult to swab off, the condition may be diphtheria. If a tonsil is greatly swollen and red, it may contain pus and the condition may be a peritonsillar abscess.

Sore throat often begins with fever, malaise, headache, muscle pains, and a slight chill or chilly feeling. The throat feels sore, particularly on swallowing. Within a few hours the tonsils and throat are swollen, red, and the tongue is coated. If inflammation progresses sufficiently, swallowing will be difficult.

If a peritonsillar abscess develops, the pain will be acute and knifelike on the affected side.

If the infection is a "strep" throat, fever and prostration will be severe and the patient will be very sick.

Treatment

For simple tonsillitis or sore throat, gargling with warm saltwater (a teaspoonful to a pint) every three hours may be all that is needed. Smoking should not be permitted. The patient with fever should be on bed rest. An ice bag or cold compress applied to the neck may be comforting, as will be pieces of cracked ice for the patient to suck. For pain, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency. Liquids should be given freely. A liquid or soft diet is allowed.

For a suspected "strep" throat, an initial dose of penicillin V potassium 500 mg should be given by mouth followed by 250 mg every six hours for ten days. If the patient is suspected of being allergic to penicillin, oral erythromycin 250 mg should be given every six hours for the full ten day course. *Medical advice by radio should be obtained before the patient is given antibiotics.*

TUBERCULOSIS (TB, Consumption)

This infectious disease is caused by the tubercle bacillus. Although the lung (pulmonary) disease is the most common, TB bacteria may attack other tissues in the body: bones, joints, glands, or kidneys. Unlike most contagious diseases, tuberculosis usually takes considerable time to develop, often involving repeated, close, and prolonged exposures to a patient with the active disease. A healthy body usually is able to control the tubercle bacilli, unless the invasion is overwhelming or the disease resistance is low from chronic alcoholism, poor nutrition, or another weakening condition.

The pulmonary form of the disease is spread most often by coughing and sneezing.

A person may have tuberculosis for a long time before it is detected. Symptoms may consist of nothing more than a persistent cough, slight loss of weight, night sweats, and a continual "all-in" or "tired-out" feeling that persists when there is no good reason for it. More definitive signs pointing to tuberculosis are a cough that persists for more than a month, raising sputum with each cough, spitting of a teaspoonful or more of blood, persistent or recurring pains in the chest, and afternoon rises in temperature.

When he reaches a convenient port, a seaman with one or more of these warning signs should see a physician.

Treatment

Every effort should be made to prevent a man who has active tuberculosis from going to sea. He is a risk to the crew's health as well as his own. At sea, anyone with definitive signs of tuberculosis must be isolated if he is coughing and raising sputum.

The treatment of tuberculosis by medications usually will not be started at sea. This is not emergency treatment.

To prevent spread, the patient should spit into disposable tissues. The patient should hold disposable tissues over his mouth and nose when coughing or sneezing and place them into a paper bag. Used cups and paper bags should be disposed of in an appropriate sanitary manner. (See Isolation Technique, p. VII–19.)

The medical attendant should follow good nursing isolation techniques. The patient's bedclothes, eating utensils, and personal clothing should be handled in the usual way without special procedures.

Tuberculosis Control

A tuberculosis control program has three objectives: (1) to keep diseased individuals from signing-on the vessel, (2) to locate those who may have developed the disease while aboard ship and initiate treatment, and (3) to give preventive treatment to persons at high risk of developing the active disease. The first objective can be achieved by periodic, thorough physical examinations that include chest X-rays and tuberculin skin testing.

To locate those who might have developed active tuberculosis, when in port a chest X-ray should be taken and a medical evaluation requested if a crew member develops symptoms of a chest cold that persist for more than two weeks.

Also, when any active disease is discovered, an intensive study should be made to detect a possible spread among close associates of the patient and others in prolonged contact with him. Such persons are regarded as contacts and are considered at risk of the disease. The tuberculin skin test is a major tool in detecting incipient tuberculosis. Those with positive tuberculin reactions should have a chest X-ray taken. If the chest X-ray shows no disease, preventive treatment with isoniazid may be prescribed.

- **Rashes of Sudden Onset**
- **Skin Infections (Pyodermas)**
- **Contact Dermatitis**
- **Boils (Furuncles) and Carbuncles**
- **Cellulitis**
- **Eczema (Atopic Dermatitis)**
- **Hand Eczema (Chronic Hand Dermatitis)**
- **Erysipelas (St. Anthony's Fire)**
- **Folliculitis**
- **Heat Rash (Prickly Heat, Miliaria)**
- **Herpes Simplex Type 1**
  (Cold Sores, Fever Blisters)
- **Herpes Simplex Type 2**
  (Genital Organs)
- **Herpes Zoster (Shingles)**
- **Hives (Urticaria, Welts, Angio Edema)**
- **Impetigo**
- **Lice Infestation (Pediculosis)**
  Head Louse
  Body Louse
  Pubic Louse
- **Paronychia (Infection of the Nail Fold)**
- **Ringworm Fungi (Dermatophytoses)**
  Scalp
  Nails
  Bearded Area or Barber's Itch
  Groin and Armpits
  General Body Surface
  Athlete's Foot
- **Scabies (The Itch)**

Chapter V

Treatment of Diseases

Section J

DISEASES OF THE SKIN

RASHES OF SUDDEN ONSET

A VARIETY OF DISORDERS may show a generalized rash, or a local rash that spreads rapidly to become generalized. These can be very frightening, both because of the explosive onset and the widespread involvement. The patient may have several other symptoms as generalized itching, chills, fever, muscle aches, and joint pains. However, a patient may feel perfectly fine and still be totally covered with skin lesions. Such patients should be isolated until the cause is determined because a generalized rash can be due to a contagious infection.

Some of these generalized rashes may be clinically typical and easy to recognize if the examiner is familiar with the disease. At times, it is impossible to differentiate among some of these diseases. *Generalized rashes of sudden onset usually are due either to an allergic reaction or to an infection.* Often an infection is treated with medicines to which a patient may show an allergic reaction, as a rash.

Allergic reactions, can be secondary to any foreign material introduced into the body, either by mouth, by injection, or by inhalation. (See Allergic Reactions, p. V–86.) Potentially offending agents to be considered include: all oral or injectable medications, as antibiotics, tranquilizers, analgesics, mood-altering drugs, insulin; many foods, as nuts and shellfish; and inhalants (fumes from paints or solvents, marijuana, smoke). The rash can begin at any time within minutes to a few weeks after being exposed to the offending agent.

The clinical picture may vary widely, the most typical appearance being that of a red rash with some parts elevated and others flat. A vivid red color is distinctive when present. This clinical picture usually is not associated with lesions within the mouth. Less commonly,

such eruptions may look like an eczematous dermatitis (see Eczema, p. V–103), hives, bull's-eye-like lesions, or blisters of all sizes. Unless the rash has been present for a long time, lymph nodes usually are not enlarged.

Many infections commonly viral in origin appear as generalized rashes. In general, viral exanthems (diffuse skin rashes caused by viral infections) are associated with a preceding illness. The rashes can follow an upper respiratory infection, as cough, runny nose, and sore throat; or gastrointestinal symptoms, as abdominal pains, vomiting, and diarrhea. These viral exanthems may be "nonspecific," and not conform to any typical clinical picture, or "specific," as the characteristic viral infections of measles, German measles, chickenpox, or smallpox. (See descriptions of other specific viral diseases.)

Most generalized rashes caused by infections come under the category of *non-specific viral exanthems*. These rashes usually start in the head and neck area and gradually move down to cover the rest of the body. The surface of the lesions is smooth and scales are not formed. If associated with an upper respiratory illness, the lymph glands in the neck may be tender and enlarged. Also, the tongue may seem smooth and red, and red dots often can be seen on the roof of the mouth. The entire rash may last five to ten days.

Other rashes from generalized infections may result from scarlet fever, Rocky Mountain spotted fever, the secondary stage of syphilis, and pityriasis rosea:

• *Scarlet fever* usually follows a strep throat bacterial infection. The skin assumes a diffuse pink color, which feels like fine sandpaper to the touch. As the rash resolves, the skin peels.

• *Rocky Mountain spotted fever* begins about the wrists and ankles with hive-like lesions that rapidly assume a purple color in the center. Patients are toxic, with severe headache and high temperatures.

• Although *secondary syphilis* may be generalized, the individual lesions remain discrete, and almost never blend with one another. The lesions are round to oval patches which may have a surface scale on top. The palms and soles are characteristically involved. The lymph glands are typically enlarged and if itching occurs, it is very mild.

• *Pityriasis rosea* may be of viral origin, although its cause is not definitely known. The skin lesions may look exactly like those of secondary syphilis described above. However, lymph nodes are not enlarged, the palms and soles are not involved, and itching, which usually is present, may be severe at times. Pityriasis rosea may begin with a single large round patch before the rest of the rash appears. The rash spontaneously disappears in one or two months.

SKIN INFECTIONS (Pyodermas)

Bacterial infections of the skin (pyodermas) differ from each other in location and in the depth and severity of skin involvement. Some of these conditions are associated with poor hygiene or tend to occur in individuals with lowered body resistance due to a chronic condition. Any person with recurrent skin infections should be referred to a physician for a complete physical examination and a laboratory study. The milder forms of pyoderma, as folliculitis (see p. V–104), may be precipitated by exposure to skin irritants, as industrial oils and solvents. The pustules and small cystic lesions of acne may resemble some of the pyodermas. Trauma to the skin from cuts, abrasions, or insect bites also may predispose an individual to skin infection.

CONTACT DERMATITIS

Reactions of the skin to external agents may be due to a reaction to harsh chemicals; or an allergy to poison ivy, foods, or drugs. These reactions may occur on the first exposure to the substance or not until the exposure has continued for a long period of time. In addition to chemicals as hydrazine, other contactants that may be encountered at sea include shoes, metals, cleaning agents, cashew nut shell oil, fuel or other oils, and solvents, among others. The location of the involved skin often is a clue to discovering the correct offending agent.

As in eczema, itching nearly always is present, and the eruption may occur in either an acute or a chronic form. *Acute contact dermatitis* exhibits redness, swelling, and blisters. The blisters may vary from pinhead size to inches in diameter. The blister fluid is clear and straw-colored, which on drying crusts where the intact blisters originally were present. If the blister fluid assumes the color and consistency of pus, this may represent a secondary bacterial infection. *Chronic low-grade contact dermatitis* may appear as only slight redness and scaling with some scratch marks or superficial cracks (fissures) in the skin. (See Fig. 5-1.)

Fig. 5–1. Contact dermatitis.

Treatment

The patient should be removed from the area where contact occurred with the offending agent. For itching, diphenhydramine hydrochloride 25 mg should be given by mouth four times a day. Because this medication may induce drowsiness as a side effect, all precision work, potentially hazardous work, or standing watch should be curtailed for the patient. Cool compresses of aluminum acetate solution (two powder packets to 500 ml of water) should be applied to the area. (See Eczema, p. V–103.) During the acute stage calamine lotion should be used after the compresses. This latter treatment will speed the drying of the blisters. When the lesions begin to subside, the calamine lotion may be replaced by hydrocortisone ointment 1%, rubbed sparingly three times daily into the affected areas. If there is secondary bacterial infection, it should be treated as described under Eczema.

Chronic contact dermatitis without blisters should be treated with small quantities of hydrocortisone ointment 1% well-rubbed into the affected areas three times a day. White petrolatum should be applied as necessary to keep the involved skin well lubricated.

Severe contact dermatitis with massive swelling or widespread involvement may be treated in the acute stage with baths to which a cup of oatmeal or cornstarch has been added. Large doses of diphenhydramine hydrochloride may be needed for symptomatic relief. Because this medication may produce drowsiness as a side effect, the patient should avoid or curtail precision work, potentially hazardous work, or standing watch. To control inflammation and swelling until the patient can be transferred to a medical facility, it may be necessary to give hydrocortisone sodium succinate 100 mg by intramuscular injection. *Medical advice by radio should be obtained* to determine the dose of diphenhydramine hydrochloride and the need for the hydrocortisone sodium succinate by intramuscular injection. Prompt evacuation to a medical facility may be indicated.

BOILS (Furuncles) and CARBUNCLES

Whereas folliculitis (see p. V–104) resembles small pimples around hair follicles, boils and carbuncles show deeper and more severe skin involvement. A *furuncle or boil* is a localized, painful, red swelling of skin and deeper tissue around one follicle. As the lesion progresses, it tends to point at the surface and discharge pus when heat is applied in the form of hot compresses. A *carbuncle* is a similar process

involving several hair follicles with several draining points. Both furuncles and carbuncles are painful and may be accompanied by tender swollen glands near the site of infection. Fever, chills, and other signs of serious generalized infection will be present if septicemia (blood poisoning) is a complication. The degree of generalized involvement with serious symptoms depends on the affected individual's ability to fight the infection.

As with any inflammation, white blood cells accumulate in the infected area and ingest the bacteria. Sometimes the white cells kill off the bacteria early in the development of a pimple or boil and the inflammation subsides without coming to a head. If the white cells are somewhat less successful, a wall of successfully-resisting body cells is built up around the boil. The tissue in the center of the boil then breaks down, and together with the bacteria and white blood cells form the yellowish-white center or core of the boil. This dead matter may be absorbed if the pimple or boil is small or it may break through the skin and discharge itself. Boils at this early stage *never* should be squeezed or drained as this may interfere with the body's ability to resist the infection and cause bacteria to enter the bloodstream. *The boil may be opened by the attendant only after it comes to a head.*

Treatment

The same treatment applies to both boils and carbuncles although the latter are considered more serious infections. Initially, when the lesion appears as a red hard swelling, hot water compresses made from clean white washcloths or torn white sheets should be applied to the involved skin areas for 15 minutes. Hot saline solution (two level teaspoonfuls of table salt to 1000 ml of water) can be used for the compresses. The temperature of the compresses should *not* be so hot that they burn the patient's skin. If the compresses cannot be handled comfortably by the attendant, then they are too hot for the patient. Bacitracin ointment should be applied to the lesions following the compresses.

When the boil comes to a head with a white spot at the center, it may be incised and drained. First the skin should be cleansed with rubbing alcohol. Then, the tip of a sterile knife blade or needle should be inserted into the white center of the boil so that pus is discharged. As long as there is drainage of pus, skin lesions should be covered loosely with sterile gauze squares. Otherwise the lesions may be left open to the air.

Folliculitis, boils, or carbuncles on or around the nose, nostrils, and on the lips should *not* be opened, except by a physician. There is always the danger of extension of the infection to the brain with serious consequences, even death. These lesions should be allowed to discharge spontaneously.

In addition to local therapy, treatment with systemic antibiotics should be given for boils if local treatment fails, the lesions are multiple or large, or there is associated fever. Treatment with systemic antibiotics is recommended for all cases of carbuncles; even if single these are serious infections, which are difficult to cure with topical therapy. Erythromycin 500 mg should be given by mouth four times daily for ten days. If the patient has systemic symptoms such as malaise, nausea, or fever, he should be on bed rest along with ample fluid intake. For pain, aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency.

CELLULITIS

Cellulitis is another infection of the skin and deeper underlying tissue caused by staphylococci, streptococci, and occasionally other bacteria. It often begins after a wound injury to the skin followed by redness, swelling, and tenderness of the area. The margins of skin involvement are flat and usually ill-defined. Cellulitis has a tendency to spread and may involve lymphatic vessels resulting in red streaking of an area which sometimes precedes septicemia (blood poisoning). In severe cellulitis, signs of systemic infection such as malaise, chills, and fever are present.

Treatment

Treatment for cellulitis includes bed rest, elevation of the affected part, and warm soaks four or five times daily, for 15 to 30 minute

periods. Antibacterial therapy for ten days should be given as outlined previously for carbuncles.

ECZEMA (Atopic Dermatitis)

Eczema is a common, noncommunicable inflammation of the skin, usually seen in individuals with a personal or family history of eczema, asthma, or hay fever. It occurs most commonly in children and adolescents, but may persist or become reactivated in adults. Factors that provoke eczema include infections, emotional stress, and allergic reactions.

Patients with eczema invariably complain of itching that at times may be severe. Changes on the skin may be either acute or chronic. Acute changes (seen more often in children) usually begin with redness and oozing that result in moist and crusted lesions. Itching leads to scratching so that scratch marks and secondary bacterial infection are common. Although eczema may affect any part or all of the body, favored sites include the wrists, front of elbows, and back of knees.

As the eczema becomes more chronic, the skin becomes thickened and leathery, with darkening in color of the affected areas, and the itching and scratch marks persisting. Secondary infection also may complicate chronic eczema.

Treatment

It is very important to reduce the itching. This can be accomplished by giving diphenhydramine hydrochloride 25 to 75 mg by mouth every four to six hours, as needed. Because this medication may induce drowsiness as a side effect, all precision work, potentially hazardous work, or standing watch should be curtailed for the patient. At bedtime the dose of diphenhydramine hydrochloride should be increased to 100 mg to help induce sleep and reduce itching.

During the acute stage, oozing can be suppressed with compresses made by soaking clean soft cloths in cool aluminum acetate solution (two powder packets to 500 ml of water) and applying them for 15 minutes three times daily. To help relieve the inflammation, hydrocortisone ointment 1% should be applied sparingly and rubbed in well after each compressing. When oozing subsides and in chronic eczema, hydrocortisone ointment can be continued for persistent redness and itchiness. A hand and body cream may be applied.

When mild secondary infection is present, bacitracin ointment can be applied three times daily in addition to the above topical treatment. More severe infection usually requires treatment with erythromycin 250 mg by mouth four times daily for ten days. Medical advice by radio should be obtained.

HAND ECZEMA (Chronic Hand Dermatitis)

Hand eczema is mentioned separately because it often shows up as a localized form of an eczematous dermatitis. It can exhibit the same clinical appearance despite having a wide variety of causes. It may be the only manifestation of eczema, contact dermatitis, or even an allergy to an inflammation elsewhere, especially a fungal infection (ringworm, athlete's foot) of the bottom of the feet. Seemingly insignificant but frequent exposures to soaps and detergents or chronic immersion in water alone may result in a chronic hand dermatitis. Interference with performance of duties may result.

Acute changes usually are absent and itching may be mild or absent. Often the hands are reddened slightly, scaly, and may have deep, painful fissures.

Treatment

If possible, for hand eczema the patient should be removed from the source of irritation. Hydrocortisone ointment 1% should be applied sparingly and thoroughly rubbed in four to six times a day. When the need for treatment with hydrocortisone ointment lessens, white petrolatum should be applied so that the hand will be kept lubricated at all times.

ERYSIPELAS (St. Anthony's Fire)

The term erysipelas comes from two Greek words meaning red skin. The infection is a type of superficial cellulitis caused by specific bacteria (streptococci). There is marked involvement of lymphatic vessels. Erysipelas may develop in skin injured by scratches, abrasions, or other wounds, and in apparently normal skin by the seeding of bacteria usually from

the nose or upper respiratory tract. Most often the onset is sudden with chills, fever, headache, occasional nausea and vomiting, rapid pulse, and a typical local skin inflammation usually on the face (especially nose and cheeks). However, erysipelas may appear on other parts of the body usually when related to wound injury. The affected skin area is painful, red, hot, and swollen. Unlike cellulitis, the lesion has a sharply defined elevated advancing border. The surface of the patch is at first smooth and shiny and later becomes covered with small blisters.

Treatment

Prompt treatment of erysipelas is necessary because the disease can lead to serious complications as abcesses, even death.

Initially for the infection, 500 mg penicillin V potassium should be given by mouth on an empty stomach, followed by 250 mg also by mouth every six hours for ten days. If the patient is allergic to penicillin, erythromycin 500 mg can be given by mouth every six hours for four days, followed by 250 mg every six hours for six more days.

Local treatment of the inflamed area consists of continuous warm soaks of saline solution (two level teaspoonfuls of table salt to 1000 ml of water) applied for 20 minutes at a time to the involved area every three to four hours.

FOLLICULITIS

Folliculitis is a superficial infection around the hair follicles usually caused by staphylococci strains of pus-forming bacteria. It is seen as redness around single or multiple hair follicles with progression to small red bumps within which pus develops. In addition to the face, especially the beard area, most often the extensor aspects of the body are involved, as the front of the legs and backs of arms.

Treatment

Treatment of folliculitis includes cleansing of the involved areas several times daily with a surgical detergent such as povidone-iodine. Skin irritants, as chemicals and oils, and friction from tightly fitting clothing should be avoided. Bacitracin ointment may be applied two or three times daily. However, as ointments are sometimes poorly tolerated, a drying lotion such as calamine lotion may be beneficial. Pricking the individual pustules with a sterile needle may hasten the clearing of lesions.

If the folliculitis is extensive or gives evidence of being resistant, treatment with a systemic antibiotic is indicated. Erythromycin 250 mg by mouth every six hours for ten days may be used.

HEAT RASH (Prickly Heat, Miliaria)

During hot humid weather heat rash may occur at sea. The rash will appear during any activity that produces sweating while exposed to heat (as in the engine room) or during a feverish illness while confined to bed. Although noncontagious, it may occur in multiple individuals if all were exposed to the same precipitating environment. The problem is caused by a blockage of the sweat glands.

Itching usually is present and may vary from mild to severe. The rash occurs mainly on the trunk and neck, but may be seen on any body area where constant friction or pressure play a role. The lesions consist of blotchy redness with tiny bumps and small blisters. A more mild asymptomatic form may occur in which very small clear blisters are the only lesions, similar to the tiny bubbles seen just before a sunburn peels.

Treatment

Most important for heat rash is removal of the patient as soon as possible from the offending environment to a cool dry location. Frequent soothing baths made with one cupful of cornstarch to a tub of water is helpful followed by a rubdown with rubbing alcohol, and when dry, an application of talc. Application of various creams or ointments should be avoided as this might aggravate the condition. Severe itching can be suppressed with diphenhydramine hydrochloride 50 mg by mouth every four to six hours. Because this medication may produce drowsiness as a side effect, precision work, potentially hazardous work, or standing watch should be curtailed while the patient is receiving the medication.

HERPES SIMPLEX TYPE 1 (Cold Sores or Fever Blisters and Herpes Keratitis)

Herpes simplex type 1 is an acute viral infection of the face that may occur on any area of the skin or mucous membranes. Once the initial episode occurs, it is presumed that the virus remains in a dormant state in the infected area and may be reactivated by a variety of excitants (as fever, trauma, exposure to sunlight, menstruation, or stress). Herpes simplex type 1 lesions most commonly occur on the lips, as cold sores or fever blisters. Also, it causes *ophthalmic herpes keratitis* (see p. V–II), an eye infection that is responsible for several thousand cases of blindness annually in the United States.

Involvement of the genitalia is also seen with increasing frequency because of orogenital sexual activity. (The next section refers to herpes simplex type 2 that infects the genitals.) Because of the contagiousness of the disorder, direct contact (sexual or nonsexual) easily can transfer the infection to another person.

The eruption often is accompanied by an itching or burning sensation localized to the area of involvement. The infection appears the same whether localized on the lips or elsewhere. The lesions either begin singly or as a cluster of clear blisters, surrounded by a halo of redness. The blisters become cloudy, often developing a central dimple, ulcerate within 48 hours, and eventually crust-over before healing. Lesions in moist areas, as the mouth, tend to lose the roofs of the blisters, leaving shallow circular erosions that crust and heal. Lymph glands nearest the infection may react by becoming swollen and tender.

Herpes simplex sometimes is found on the fingers. When caring for patients with cold sores or fever blisters, attendants are cautioned to wear rubber gloves to protect the fingers from direct contact with lesions and possible infection by the type 1 virus.

Treatment

There are no medications known now that can cure recurrent herpes simplex infections. For symptomatic relief, compressing is recommended for the infected area, using a washcloth soaked in aluminum acetate solution (two packets to 500 ml of water) for 15 minute periods four times daily. Between periods of compressing, the lesions should be dabbed with 70% of rubbing alcohol to help the blisters clear up more quickly. On reaching shore, the patient should consult a physician.

HERPES SIMPLEX TYPE 2 (Genital Organs)

Genital herpes is a venereal disease caused by the herpes simplex type 2 virus. It was estimated to be the second most prevalent form of VD in the United States in 1976. (See p. V–114.)

HERPES ZOSTER (Shingles)

Shingles is an acute viral infection caused by the same virus that causes chickenpox. The disease probably can be contracted by exposure to a patient with either shingles or chickenpox. The infection involves only one cranial or spinal nerve on one side of the body. This gives rise to two prominent characteristics of this disease: (1) because nerves are involved, the patient often experiences localized itching and/or severe pain; and (2) because only one nerve root is involved, skin lesions appear only in the areas supplied by the one nerve. Therefore, lesions occur in a very localized segmental distribution on only one side of the body. The occurrence of shingles of the eye or tissues around the eye is a serious problem that requires early medical attention. Occasionally, herpes zoster may become generalized, recognizable by the appearance of blisters disseminated widely on the skin surface. This complication requires evacuation of the patient to a medical facility.

Pain usually is present. It may be severe enough to mimic acute abdominal colic or even a heart attack. As in herpes simplex, clear blisters crop up in groups that become cloudy, then dimpled, and finally crust before healing. The blistered areas are surrounded by a halo of redness. The rash may take several weeks to clear completely, but the pain may persist for months longer.

Treatment

Depending on the patient's response to severe pain, codeine sulfate 30 mg or 60 mg

should be given by mouth for shingles. *The attendant should obtain medical advice by radio to continue this medication.* Localized care should include cool compresses of aluminum acetate solution (mix two packets to 500 ml of water) applied for a 15 minute period four times daily. After drying, the entire involved area should be covered with calamine lotion. Also, secondary local bacterial infections should be treated with bacitracin ointment applied four times daily.

HIVES
(Urticaria, Welts, Angio Edema)

Hives are a common problem that result from allergy to a large number of agents. These agents may be either internal or external. Examples of internal causes include infections as hepatitis and mononucleosis; dental abcess; drugs as aspirin, barbiturates, antibiotics, and narcotics; foods as shellfish, eggs, strawberries, and nuts; and anxiety states. External agents include insects, jellyfish, and rarely certain chemicals.

Individual lesions of hives usually last for several hours, but new lesions may come and go for a week or longer after a single exposure to the causative agent. Occasionally, hives may persist for months or years if the cause cannot be found.

Hives can occur anywhere on the body and are typically itchy. They show suddenly as pink or white slightly raised bumps, varying in size from a matchhead to large areas of the body. The lesions have a smooth surface and do not develop scales, crusts, or blisters. (See Fig. 5-2.)

In addition to typical hives, swelling may occur on certain body areas, as the hands, feet, lips, or face. Swelling that occurs inside the mouth may obstruct breathing so emergency medical care will be required.

Treatment

A diligent search for the offending agent is necessary, or continued exposure may result in persistent hives. Diphenhydramine hydrochloride, 25 to 75 mg depending on severity and patient response, should be given by mouth every four to six hours to help suppress the itching and shorten the course of illness. Drowsiness may result as a side effect of diphenhydramine hydrochloride, so the patient should be excused from standing watch, or doing precision work or potentially hazardous work while receiving the medication.

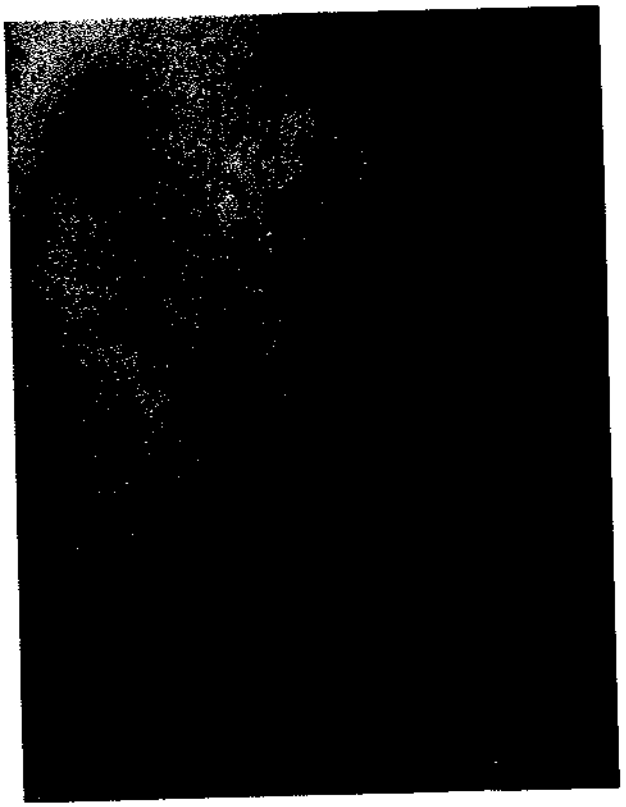

Fig. 5–2. Hives (urticaria).

Severe reactions or oral involvement may require 0.3 to 0.5 ml epinephrine hydrochloride injection 1:1000 to be administered subcutaneously. (See Anaphylactic Reaction, p. V–87.)

IMPETIGO

Impetigo is a highly contagious superficial skin infection caused by staphylococcal and streptococcal bacteria. Lesions begin as small red patches which develop blisters on the surface. The blisters may not be noticed, as they quickly rupture and form honey-colored crusts or scabs. As the condition progresses, healing may occur in the center with a surrounding crust that may resemble a ringworm. Because impetigo occurs more commonly on the face or extremities of the body, it may complicate preexisting skin conditions as eczema or insect bites. If the lesions of impetigo are severe or

widespread, generalized symptoms of malaise, fever, and chills may occur.

Untreated impetigo runs a chronic course with new lesions occurring over a period of many weeks. Usually there are no serious complications. Occasionally certain types of bacteria are present that can lead to serious kidney disease. Thus prompt treatment is necessary for all cases of impetigo.

Treatment

Cleanliness is of utmost importance for impetigo. Strict isolation of a patient should be followed until the lesions begin to heal.

The crusts should be removed gently by washing three or four times daily with povidone-iodine cleanser. This should be followed with compresses of warm aluminum acetate solution (mix two packets with 500 ml of water). Once the crusts are removed, bacitracin ointment should be applied after each compressing. If the patient is not allergic, systemic antibiotic treatment should be given with oral penicillin V potassium 250 mg four times daily for a 10 day course. For a patient allergic to penicillin, erythromycin 250 mg should be given by mouth four times daily for 10 days.

If there are systemic symptoms as fever and chills, the patient should be placed at bed rest with ample fluid intake. Aspirin 600 mg should be given by mouth every three to four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency.

LICE INFESTATION (Pediculosis)

The head louse, body louse, and pubic louse are three types of small sucking insects that infest man. All three types cause severe skin irritation and itching. Scratching permits germs responsible for impetigo, boils, and carbuncles to invade the body. This secondary bacterial infection is a frequent complication and must be treated in addition to the pediculosis (louse infestation). (See Skin Infections, p. V–100.) Poor personal hygiene, unclean clothes or bed linens, and direct contact with an infested person or his belongings favor infestation with lice.

Head Louse Infestation (Pediculosis Capitis)

It usually is difficult to see *Pediculus humanus capitis*, the louse responsible for infestation of the hairy regions of the head. More frequently one finds the eggs or nits that appear as small gray or white sacs firmly attached to scalp hairs. These lice usually stay on the head but may wander to infest other hairy parts.

Treatment

After a bath or shower that includes a shampoo, a thin layer of gamma benzene hexachloride cream 1% should be applied to the entire scalp and left on overnight for about 12 hours. Care should be taken to keep the cream out of the eyes. The patient should shampoo again the following morning. Then a fine-toothed comb should be used to dislodge the nits from the hair. An infested individual should not allow others to use his comb or wear his hat.

Body Louse Infestation (Pediculosis Corporis)

Body lice are a problem because they may transmit diseases such as typhus fever and relapsing fever. These lice (*Pediculus humanus corporis*) usually are not seen on the body as they live in the seams of clothing and attach to the body only when they are feeding. Nits appearing as small grey or white sacs also are seen in the seams of clothing. On examination of the patient the attendant will see scratch marks and bite marks which appear as tiny punctures with encircling redness. Lesions are located mostly on areas where the clothing comes in close contact with the skin, as the shoulders, chest, around the waist, and buttocks.

Treatment

For body lice the infested individual should bathe thoroughly and apply a thin layer of 1% gamma benzene hexachloride cream to the entire body, taking care to avoid getting it into the eyes. Sixty grams (about two ounces) of the medication may be required to cover the body entirely. After leaving the medication on for 24 hours, the patient again should bathe thoroughly and be provided with fresh clothes and bed linens. Clothes may be decontaminated

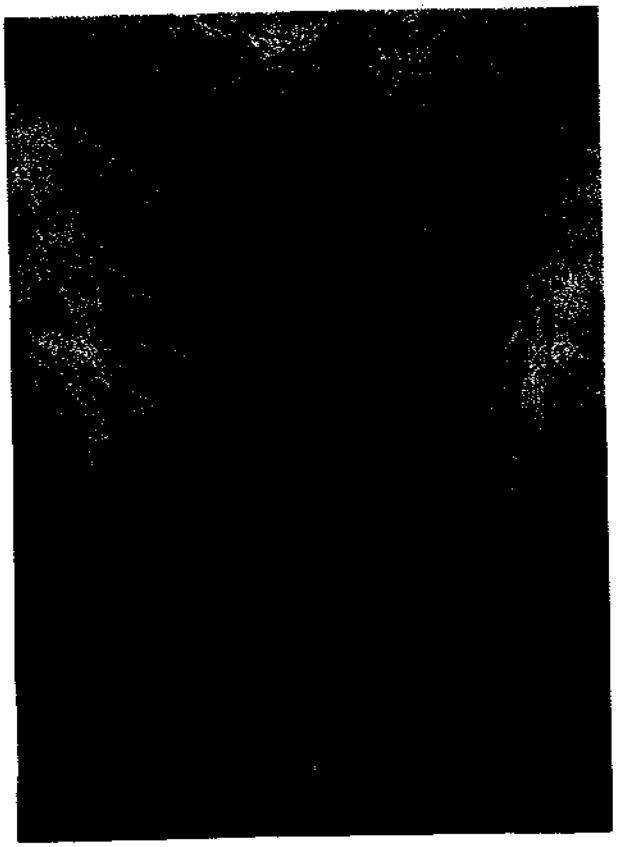

Fig. 5–3. Pubic Louse *(Pediculosis pubis).*

by dry cleaning or by boiling. Preventing reinfestation may be difficult in crowded quarters. A mass delousing may be carried out by blowing 1% malathion (premium grade) powder under the clothing and by treating the garments with steam under pressure.

Pubic Louse Infestation (Pediculosis Pubis)

Pubic lice often are called crab lice because of their flattened crab-like shape. Although *Phthirus pubis* (crab louse species) usually infests the coarse hairs of the pubic region, they may be found on the lower abdomen, in the armpits, on the chest of a hairy individual, and even in the eyebrows. This type of pediculosis may be transmitted by sexual intercourse, or from contact with toilet seats, clothing, and bedclothes. (See Fig. 5–3.)

On examination of the patient, one usually sees the pale blue–gray bite marks on the skin, or the eggs appearing as gray or white sacs attached to the skin at the base of the pubic hairs. The crab lice are almost transparent and difficult to detect.

Treatment

To eliminate pubic lice and their nits, the infested individual should bathe thoroughly and apply a thin layer of 1% gamma benzene hexachloride cream to the pubic area and other parts involved. After leaving the medication on for 24 hours, the patient again should bathe thoroughly and be provided with fresh clothes and bed linens. The medication never should be applied about the eyelids or eyelashes. Appropriate measures to decontaminate clothing and living quarters, toilets, and bunks should be carried out as described under body louse.

PARONYCHIA
(Infection of the Nail Fold)

A paronychia is an infection of a nail fold, usually on a finger, marked by redness, pain, and swelling that leads to a discharge of pus. The acute paronychias of sudden onset usually are caused by bacteria such as staphylococci or streptococci that enter a small cut or scratch around the nail. The chronic paronychias more commonly are caused by a yeast (*Candida*) infection that tends to occur in individuals, as dishwashers who immerse their hands in water for long periods of time.

Treatment

Paronychia infections should be treated with warm soaks of aluminum acetate solution (using two packets to 500 ml of water) for 20 minutes three to four times daily. Incision and drainage is indicated when the lesion points to discharge pus, as with boils. (See p. V–101.) An antibiotic ointment such as bacitracin should be applied between soaks. If fever or swollen painful glands are present in the armpits, systemic antibiotic treatment with erythromycin 250 mg by mouth four times daily for seven to ten days should be given. Care should be taken to avoid injury to the affected finger and to prevent unnecessary or prolonged contact with water or other liquids. If the paronychia does not respond to the above measures and becomes chronic, the patient should be referred to a skin clinic for more specific therapy when on shore leave. Dishwashers and other food service workers should be excused from food preparation until the lesions have healed.

RINGWORM FUNGI (Dermatophytoses)

Ringworm fungi or dermatophytes are plant organisms that grow in the uppermost layer of the skin and cause infections of the skin, hair, and nails. The clinical picture of ringworm varies widely and depends both on the part of the body affected and the causative fungus. The presence of secondary bacterial infection or the development of an allergic reaction to the fungus may further modify the clinical appearance. Almost everyone is exposed to these fungi at some time or another. However, actual infection is uncommon and is influenced by many factors as: geographic area; local climatic conditions favoring fungal growth as warmth, moisture, and darkness; injury or trauma to the skin; individual predisposition; and the presence of other medical conditions which may lower resistance.

Many other skin diseases resemble ringworm. The exact diagnosis is made by identifying the fungus under the microscope and/or growing it in culture.

Treatment

Treatment of ringworm fungus consists of simple local therapy which may be given until an exact diagnosis can be made in port by a physician who will prescribe further treatment.

Ringworm of Scalp (Tinea Capitis)

Ringworm of the scalp is more commonly seen in children. Lesions occur as round, scaly patches showing hairs broken off close to the base, and sometimes black dots. The *inflammatory type,* which shows varying degrees of swelling, redness, and pustules, usually heals with considerable scarring and permanent hair loss.

Favus is another type of ringworm of the scalp, sometimes showing a honeycomb-like crusting with a mousy odor. It is common in some countries, especially in eastern Europe and western Asia. Seamen going ashore in these areas should avoid close contact with persons who appear to have scalp disease.

Treatment

Until the patient with ringworm of the scalp can be seen by a physician, local therapy should be given. The scalp should be shampooed daily. The infected hairs should be clipped closely and properly disposed of. The scissors may be sterilized by boiling. A topical antifungal preparation as benzoic and salicylic acids ointment should be applied two or three times daily to the entire scalp, especially the involved areas. In cases of marked inflammation and crusting with pustules, lukewarm compresses with aluminum acetate solution (using two packets to 500 ml of water) should be applied for 15 minutes three times daily. For any secondary bacterial infection or pustular scalp disease, antibiotic therapy should be prescribed as erythromycin 250 mg by mouth four times daily for ten days.

Ringworm of Nails (Onychomycosis)

This ringworm condition involves toenails more often than fingernails. Initially there is a white or yellow discoloration along the lateral margins of the nails. The nails become progressively more discolored, elevated, thickened, and fragmented.

Treatment

Onychomycosis is very difficult to treat. Local therapy of limited usefulness may be given with 1% tolnaftate solution applied sparingly two or three times daily until the patient sees a physician. The nails should be kept closely trimmed.

Ringworm of Bearded Area (Tinea Barbae) or Barber's Itch

Lesions may resemble those in ringworm of the body or scalp. There may be round scaly plaques that tend to clear centrally, or more inflammatory lesions with redness, pustules, and broken-off hairs.

Treatment

For barber's itch topical therapy with benzoic and salicylic acids ointment, or 1% tolnaftate solution three times daily may be given until the patient sees a physician. In more acute cases with considerable crusting, wet compresses with aluminum acetate solution (two packets to 500 ml of water) should be applied several times daily.

If there is much pus and crusting, or if the patient has systemic signs of secondary bacterial infection with fever and malaise, treatment should be given with erythromycin 250 mg by mouth four times daily for seven days or according to medical advice by radio. Proper hygiene includes washing the face and other involved areas once or twice daily with liquid povidone-iodine cleanser or similar surgical soap. A person with barber's itch should not permit anyone to use his shaving materials.

Ringworm of Groin (Tinea Cruris) and Armpits

This common condition seen in one or both groin areas is aggravated by sweating, increased temperature, friction from rubbing of the legs, or tightly fitting clothing. Lesions appear as red or brown scaly plaques with sharply outlined borders often showing small red bumps or blisters.

Treatment

In acute cases there may be considerable weeping from the lesions, so cool compresses with aluminum acetate solution (two packets to 500 ml of water) should be applied for 15 minutes three or four times daily. When the acute inflammation has subsided, the area should be treated three times daily with 1% tolnaftate powder. A yeast infection caused by *Candida* may resemble tinea cruris but will not respond to tolnaftate. (See p. V–99.) While in port, the patient should be referred to a physician for specific treatment.

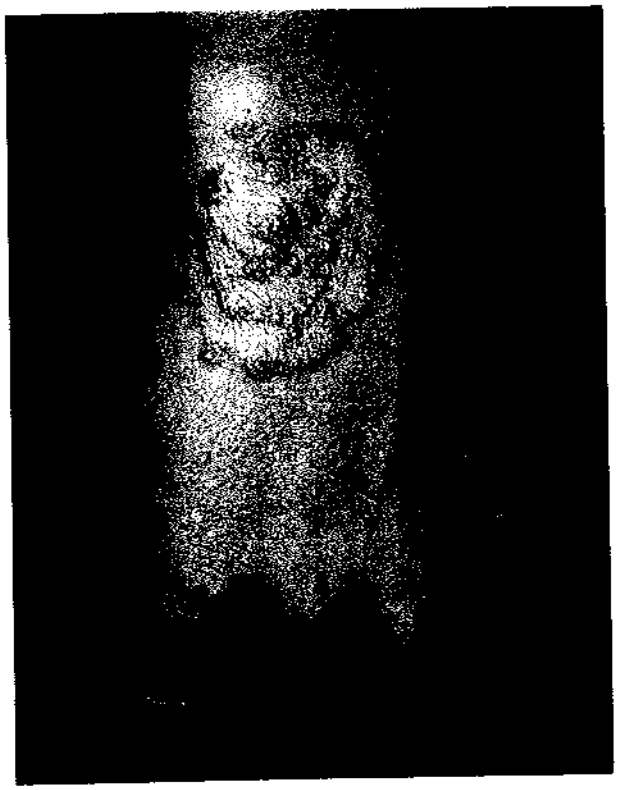

Fig. 5–4. Ringworm *(Tinea corporis)*.

Ringworm of General Body Surface (Tinea Corporis)

Tinea Corporis which involves the trunk and upper extremities is not common in temperate climates. It occurs as one to several large or small round scaly plaques on the body, often showing minute blisters on the surface. (See Fig. 5–4.) The lesions tend to show central clearing with extension at the margins. This condition sometimes can be spread from the infected fur of dogs or cats to man.

Treatment

Until the patient can see a physician, local therapy is of limited usefulness. Benzoic and salicylic acids ointment or 1% tolnaftate solution may be applied sparingly to the body area three times daily.

Ringworm of Feet (Tinea Pedis) or Athlete's Foot

Ringworm of the feet is a very common condition which usually begins in the webs of toes especially between the fourth and little toe. One or both feet may be affected. The involved skin areas show redness with moist whitish scaling, often with cracks or fissures and raw areas. The condition may spread onto the soles and appear as red patches with scaling and deep-seated blisters.

Treatment

In all cases of ringworm it is important after bathing to dry the feet thoroughly especially between the toes. In mild cases, 1% tolnaftate solution should be applied sparingly two to three times daily and tolnaftate powder 1% sprinkled into the socks. If possible, the patient should wear open-toed sandals with thin socks or preferably no socks.

In more acute ringworm conditions where there is considerable swelling, redness and weeping, the feet should be soaked in cool alu-

minum acetate solution (using two packets to 500 ml of water) for 15 minutes followed by the application of bacitracin ointment three times daily. If cellulitis is a complication, this should be treated with erythromycin 250 mg by mouth four times a day for five days. When the acute inflammation has subsided, then local therapy with 1% tolnaftate solution or powder may be applied as discussed previously.

Occasionally sensitivity of a section of the skin may be a reaction to a distant focal infection. These reactions often are manifested by small red bumps or blisters on the hands. Fungi are not present in these lesions which subside with treatment of the primary condition.

SCABIES (The Itch)

This highly contagious skin disease is caused by the female mite which burrows into the skin to deposit her eggs. In several days the eggs hatch and the cycle is repeated. Symptoms are severe itching that is worse at night. Scabies is transmitted by close contact with an affected individual or by contaminated bed linens. The characteristic skin finding is the burrow which appears as a short thread-like gray line under the skin. Burrows may not always be evident but scratch marks, scabs, small blisters or red bumps commonly are seen. Lesions tend to occur on the finger webs, wrists, armpits, genitalia, lower buttocks, nipples, umbilicus, but not on the face.

Treatment

For the intense itching of scabies, diphenhydramine hydrochloride 50 mg by mouth should be given three times daily as necessary. Because of possible side effects, as drowsiness or dizziness, a patient receiving diphenhydramine should be excused from working at heights or in the vicinity of dangerous machinery. The patient should take a hot shower with gentle scrubbing to remove any scabs from all involved areas. Then gamma benzene hexachloride cream 1% should be applied in a thin layer to the entire body below the neck. After 24 hours the patient should bathe again, put on clean clothing, and change bed linens. If necessary, one repeat application may be given in four days. The clothing previously worn and all bed linens should be washed. All contacts should be given prophylactic treatment or be checked for the disease at intervals.

- Introduction
- Prevention
- VD in the Homosexual and Bisexual
- Gonorrhea
- Herpes Simplex Type 2
- Syphilis
- Chancroid
- Lymphogranuloma Venereum
- Granuloma Inguinale
- Urethritis (Nonspecific)
- Precautions for VD Patients and Attendants

Chapter V

Treatment of Diseases

Section K

VENEREAL DISEASES

INTRODUCTION

THESE COMMUNICABLE DISEASES, spread chiefly by sexual contact, are listed in order of estimated prevalence: gonorrhea, herpes simplex, syphilis, chancroid, lymphogranuloma venereum, and granuloma inguinale. The greatest number of new infections occurs among young adults. Herpes simplex of the genitals is being seen with increasing frequency today. This increase may be due to self-infection or to greater orogenital sexual activity.

PREVENTION

The best way to escape venereal infection is to abstain from promiscuous sexual intercourse. Many prostitutes have several venereal diseases at the same time—as syphilis with gonorrhea, and either one or both with herpes. Anyone who has sexual relations with casual contacts is more likely to become infected with a venereal disease.

Next to avoidance of promiscuous sexual contacts, protection of the male's penis with a condom during intercourse and careful cleansing afterward are the safest methods of escaping infection. A supply of condoms should be available aboard ship. The condom or rubber is a thin elastic covering that forms a protective sheath over the penis. If properly used, it should prevent infection during intercourse, unless the point of contact with an infective lesion is beyond the area covered by the condom. The condom should be of good quality and new. To prevent tearing or puncturing, the condom should be kept in its original container until used. It should not be kept days or weeks in an inside pocket because body heat and sweat may cause deterioration.

The condom comes rolled or should be rolled before use. It must be placed over the penis before sexual contact. The tip of the condom should be held to form a pocket to receive the ejaculate. The rest of the condom is then unrolled to cover the entire penis. As soon as the male has an orgasm, the penis should be withdrawn from the vagina before it softens, because the condom may loosen and expose the penis to infection. The condom is removed by grasping at the open end with the fingers and pulling it down quickly so that it comes off inside out. The condom should be discarded without further handling because it may contain infectious material. *The man should urinate at once, and immediately wash the genitalia, lower abdomen, and thighs with soap and water* before any bacteria penetrate the skin. The longer that washing is delayed, the less good it will do.

VD IN THE HOMOSEXUAL AND BISEXUAL

In some areas of the United States, there is a high incidence of syphilis among male homosexuals. When examining a homosexual suspected of syphilis, the area surrounding the anus and anal canal must be examined for chancres. The mouth also should be examined closely. (See Fig. 5–5.)

There is a higher incidence of pharyngeal gonorrhea in individuals who practice orogenital sex. Therefore, individuals with homosexual contacts should have a culture made from the pharynx and the rectal area after reaching port.

Treating and interviewing individuals with homosexual contacts must be done in a nonthreatening, non-demeaning, and calm fashion.

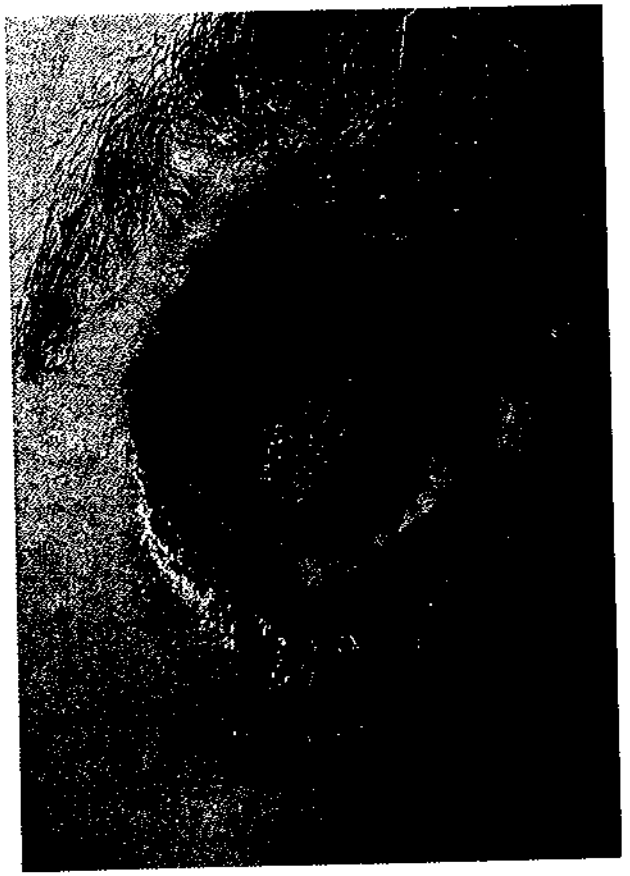

Fig. 5–5. Primary syphilis of the lip.

GONORRHEA (Clap)

Gonorrhea is the most prevalent of the venereal diseases. The infection is caused by the gonococcus bacterium. The usual onset from the time of infection to appearance of symptoms or signs (incubation period) is from two to 14 days after exposure, with an average of three to five days. However, the incubation period may be delayed up to a month. The disease is more easily identified in males than females. Because up to 80 percent of females have no symptoms, a large reservoir of untreated gonorrhea exists. The ordinary symptoms in the male include sudden onset of pain or burning on urination, urgent and frequent urination, and the presence of a white or yellow discharge from the urethra. With these symptoms, a presumptive diagnosis of gonorrhea may be made. A more accurate diagnosis is possible by examining Gram-stained smears of the discharge under the microscope. The organisms appear Gram-negative and occur both inside and outside the white blood cells.

Treatment

If the ship is not more than a day or two from port, it is advisable for the medical attendant to withhold antibiotic treatment for uncomplicated gonorrhea. Instead, the patient should be referred to a physician in port for diagnostic tests and treatment. A crewman known to have been exposed to gonorrhea should receive the same treatment as those who have a proven gonorrhea infection.

If the patient is to be treated aboard ship, medical advice by radio should be obtained. For both women and men, the drug of choice is pencillin G procaine in large doses by injection. The patient first should receive one gram of probenecid by mouth. Thirty minutes later, a total of 4.8 million units of penicillin G procaine sterile suspension should be divided into at least two doses and administered intramuscularly at different sites of the buttocks.

An acceptable alternate penicillin treatment for both women and men is ampicillin 3.5 grams (14 capsules of 250 mg) with one gram of probenecid, both administered by mouth at the same time.

When the patient is allergic to penicillin, ampicillin, probenecid, or has had a previous anaphylactic reaction, tetracycline should be given by mouth. The treatment would be tetracycline hydrochloride 1.5 grams (six capsules

or tablets of 250 mg) as the first dose, followed by 500 mg four times a day for four days, for a total dosage of nine grams.

All gonorrhea patients who are treated with any drug other than the recommended dosage schedule of procaine penicillin, should have a blood test for syphilis once a month for four months. *If this testing would not be practical, the patient must receive a course of tetracycline hydrochloride or penicillin therapy, which also is adequate to cure syphilis.* (*See p. V–115.*) *More than one venereal disease may occur together, which may necessitate other or additional treatment.*

Patients who are treated for gonorrhea should have follow-up tests for the disease. From men, follow-up urethral specimens should be obtained seven days after completion of treatment. From women, cervical and rectal specimens should be obtained seven to 14 days after completion of treatment.

Complications of gonorrhea include inflammation of the prostate gland, swollen testicles, urethral stricture, sterility, swollen and painful joints, meningitis and endocarditis.

If the testicles become swollen, the patient should be placed on bed rest with the scrotum supported by a folded towel between the thighs or an adhesive plaster support. An ice bag covered with a towel should be applied. For pain, aspirin 600 mg should be given by mouth every three or four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency.

HERPES SIMPLEX TYPE 2
(Male and Female Genitals)

Genital herpes is a sexually transmitted venereal infection that is caused by a virus called *herpes simplex*. Most herpes infections of the genital organs are caused by the type 2 herpes simplex virus. Herpes facial infections (as cold sores and fever blisters on the lips) are usually caused by the type 1 herpes simplex virus. Herpes types 1 and 2 are antigenically different types. Although type 1 usually occurs on the face and type 2 on the genitals, at least 10% of each type are occurring on the other site. This is due in part to an increase in orogenital activity. In 1976, herpes simplex of the genitals was estimated to be the second most prevalent venereal disease, after gonorrhea.

Genital herpes usually appears as a number of small blisters on the penis, the lips of the vagina, around the anus, or on the thighs and buttocks. The fluid-filled blisters usually are painful, although they only may tingle. Within a day or two the blisters break, leaving open sores that take one to six weeks to heal. Lymph glands near the infection may react by becoming swollen and tender. In most cases a doctor can diagnose herpes by the appearance of the lesions. Occasionally other tests may be used to confirm the diagnosis.

Genital herpes, like fever blisters, can be recurrent. After the sores are healed, the virus remains dormant in the body for a period of time. Weeks or months later, there may be a recurrence of the active infection. Recurrent attacks tend to be less severe than the initial attack, to heal more quickly, and to become less frequent with time.

Treatment

Like the common cold, which also is caused by a virus, there is no cure for genital herpes type 2 infections. However, there are things that can be done to help relieve the symptoms, promote healing of the lesions, and prevent secondary infection from other microorganisms. One of the best of these is a hot bath. Soaking in a tub or sitz bath as hot as the patient can tolerate for 15 to 20 minutes, two or three times daily, will help lessen pain and promote healing of the lesions. If the sores are irritated by urination, a little petroleum jelly applied on them will help. Cotton underwear should be worn because nylon underwear and pantyhose can trap moisture and prevent healing.

To help relieve the symptoms, aspirin 600 mg may be given by mouth every three or four hours as needed. If aspirin is not well tolerated by the patient, acetaminophen may be tried at the same dosage and frequency.

Precautions

While treating the herpes symptoms, a careful watch should be kept for the presence of other venereal diseases. On shore, serologic tests for syphilis may be performed.

The attendant should not palpate any genital lesion without a rubber glove on the hand. Direct contact with herpes lesions may possibly infect the fingers with herpes type 2 virus.

Because genital herpes can be transmitted by sexual intercourse, people with herpes should not have sexual intercourse until the lesions have healed completely. Because it is not known if someone with herpes is infectious after the lesions have healed, it would be a good idea to use a condom at other times to prevent giving herpes to a noninfected partner.

A baby born to a woman with an active genital herpes infection is at risk of being infected. Herpes infections in the newborn can be serious. Therefore, a pregnant woman who has had genital herpes always should tell her doctor.

There is evidence that a woman with genital herpes is at greater risk of developing cancer of the cervix, although not all women with herpes will develop cancer. It is important for a woman with genital herpes to have a Papanicalaou (Pap) test every six months. Cancer of the cervix is curable, if it is discovered early.

SYPHILIS

Syphilis is a venereal disease caused by the spirochete *Treponema pallidum*. Although it can penetrate ordinary skin through small cuts or abrasions, the spirochete can enter unbroken, moist mucous membranes of the genitalia and mouth. Most syphilitic infections are contracted and transmitted through sexual contact. The early stages of syphilis usually are painless and cause little disability. The lesions may heal without treatment and the disease can lie dormant in the body for several years. In the late stages syphilis can cause serious damage to the brain and spinal cord that may result in insanity and paralysis. The disease can damage the heart valves leading to heart failure; and it can affect other organs in the body, as the eyes and liver. Once the damage is done, it cannot be reversed by treatment.

The first stage, primary syphilis, is characterized by the presence of a chancre at the point where the germs entered the body. There is a delay of ten days to three months after contact, before the onset of any visible sign of the infection. Following the appearance of the initial syphilitic chancre, there is an additional delay of one to four weeks before the serologic (blood) test for syphilis will become positive. The typical syphilitic chancre will occur on or about the genitalia. (See Fig. 5–6.) However, a chancre may occur anywhere on the body where there has been contact with an infective lesion. Such lesions usually are single, but may number more than one. Lesions often are smooth and clean-looking on the surface. Sometimes the lesion ulcerates and leaves a reddish sore with the base of the ulcer covered by a yellow or grayish exudate. Unless there is secondary infection with pus-forming organisms, the syphilitic chancre will be painless even when touched or manipulated by the examiner. The lesion has a characteristic firmness when felt between the thumb and forefinger.

Often there will be one or more rubbery, hard, painless, enlarged lymph nodes in one or both groins, or in other regions if the chancre is extragenital. In the presence of a secondary infection, the node may be tender. Accurate diagnosis requires the use of a microscope to demonstrate the organisms by the dark-field examination technique. These lesions will heal

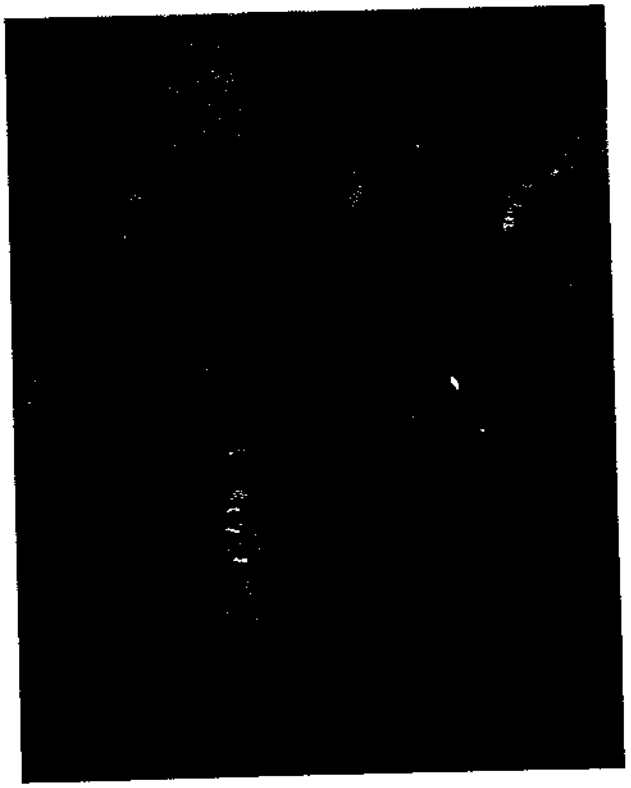

Fig. 5–6. Penile ulcer, syphilis chancre.

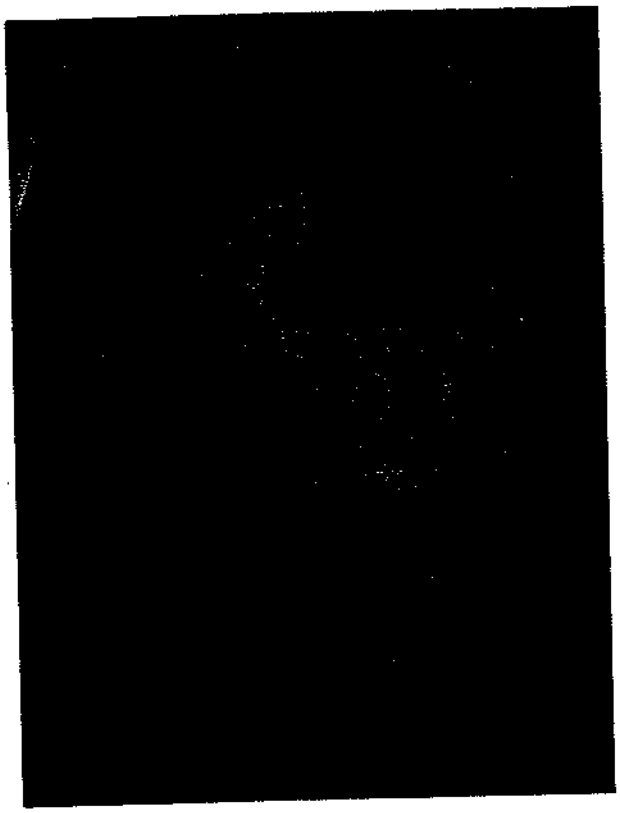

Fig. 5–7. Secondary syphilis.

spontaneously, usually within six weeks. In the chancre stage, the disease is highly contagious.

No local or systemic treatment should be applied or given if the patient can be brought to a medical facility within a reasonable time. The local application of antibiotics or antiseptics is especially distressing to a physician because these usually nullify the diagnostic value of the dark-field examination.

The secondary stage of syphilis usually develops in about six to eight weeks after the appearance of the primary chancre. In fact, the primary syphilitic chancre still may be present at the time of onset of the secondary stage. However, the secondary stage may be the first manifestation occurring some 10 to 14 weeks after the infecting contact. The most consistent feature of secondary syphilis is a nonitching skin rash which may be generalized in the form of small flat or slightly elevated bumps; or it may be localized on the palms, soles, or genital areas. (See Fig. 5–7.) Lesions on the genitalia often are eroded. Mouth ulcers or flat whitish mucous patches also are typical of secondary syphilis. A less frequently encountered sign includes patchy loss of scalp hair. Patients with secondary syphilis may complain of malaise (not feeling well), headache, sore throat, and a low-grade fever. The presence of these symptoms plus a generalized rash, a rash involving the palms and soles that does not itch, and is associated with enlarged small lymph nodes in the neck, armpits, and groin, should arouse suspicion of secondary syphilis. It should be noted that moist lesions of secondary syphilis are teeming with spirochetes and thus are highly infectious. The diagnosis is confirmed by dark-field examination of the lesions and a blood test for syphilis, which is nearly always positive in this stage of the disease.

The symptoms of the second stage, like those of the first stage disappear without treatment when the disease is in the latent (hiding) stage. However, about 25 percent of such patients will undergo one or more relapses into the secondary stage.

Late symptomatic or tertiary syphilis follows the secondary stage. A quiescent period up to 20 years may pass before the onset of symptoms and signs of the third and final stage. The end result of this last stage of untreated syphilis is destruction of various organs, especially the heart and nervous system. Patients should be advised to cooperate with the physician and accept the indicated treatment. A spinal tap may be important to determine accurately the stage of the disease so that adequate therapy can be administered.

Treatment

If a patient develops syphilis while at sea without a physician in attendance, he should be advised to obtain medical care when the ship reaches port. Patients with suspected infectious syphilis should be kept isolated from other members of the crew. Primary chancres should be cleansed daily with soap and water, and the affected area soaked with normal saline solution (two level teaspoonfuls of table salt to 1000 ml of water) for 20 minutes, four times a day. *Any patient with a generalized rash should be considered possibly infectious until a definitive diagnosis is made.*

To treat the infection, the drug of choice is benzathine penicillin G for a total dosage of 7.2 million units. Single injections of 2.4 million units should be given intramuscularly every

five days (a total of three injections over a ten-day period). Alternately penicillin G procaine sterile suspension may be given intramuscularly in daily doses of 1.2 million units for ten days, for a total dosage of 12 million units. If the patient is sensitive or allergic to penicillins, then erythromycin or tetracycline are alternate drugs. Either of these drugs may be administered in oral doses of 500 mg, four times a day for 20 days, for a total dosage of 40 grams. In the absence of a penicillin allergy, penicillin is the drug of choice because its effectiveness in the late stages of syphilis has been proven.

About 50 percent of patients with early infectious syphilis, when treated with penicillin, will manifest the Jarisch-Herxheimer reaction, usually within six to 12 hours after the first injection. This reaction is characterized by fever, chills, joint aches, increased swelling of the primary lesion(s), or increased prominence of the secondary rash. Occasionally, a patient who is on the verge of secondary syphilis will develop lesions of secondary syphilis during the Jarisch-Herxheimer reaction. This reaction is caused by the rapid destruction of the syphilis organisms and is mentioned only because it is likely to be confused with an allergic penicillin reaction. Aspirin is sufficient treatment. This reaction does not occur after subsequent doses of penicillin.

CHANCROID (Soft Chancre)

Chancroid, almost always acquired during sexual intercourse, is caused by a small acid-fast gram-negative bacillus *Haemophilus ducreyi.*

Females may harbor this infection without any clinical evidence, so the disease most often is identified in sexually promiscuous uncircumcised males. The incubation period (the time following the infecting contact to the initial appearance of symptoms) is short, varying from one to 12 days, usually averaging three to five days.

It is important to know that chancroid and syphilis may be acquired from a single exposure. Chancroid, which has a shorter incubation period, will appear first; therefore the possibility of a primary syphilis infection existing at the same time must be considered. The initial chancroid lesion usually appears as a small inflammatory bump, which soon forms a blister or pustule that rapidly breaks down to form a very painful ulcer. Because of the tendency toward self-inoculation, multiple satellite lesions develop on opposing skin surfaces, or on areas adjacent to the first lesion.

In the male, the commonest sites of involvement include the tip of the prepuce (foreskin), the inner prepuce, the groove proximal to the glans (head), shaft, and lastly the base of the penis.

In the female, the lesions are characteristically on the external genitalia. As opposed to syphilis, chancroid lesions are more often multiple than single. The lesions usually remain small, shallow to punched-out and round to oval with a red, elevated, ragged border. The base has a granular appearance and usually is covered with a grayish-yellow dirty-appearing, foul-smelling discharge. Typically, the lesions are soft and lack the characteristic hardness of the syphilitic chancre; they are extremely tender to the touch and may bleed easily when manipulated. Inguinal lymph node enlargement may occur in approximately 50 percent of cases, following the appearance of the primary lesion by about one to two weeks.

The chancroidal bubo usually occurs on one side as a single inflamed mass with symptoms and signs that mimic the primary lesions, as tenderness with warmth and redness of the overlying skin. These buboes tend to become soft and may rupture through the skin surface leaving a drainage sinus tract. It should be noted that chancroid is a local infection which usually is not associated with constitutional symptoms. The presence of multiple, painfully tender, not hard genital ulcers, with or without a bubo and without systemic symptoms suggests a diagnosis of chancroid. Laboratory confirmation of the clinical diagnosis usually is dependent upon identifying the Gram-negative organisms on stained smears.

Treatment

Chancroid should be treated by cleansing the ulcers with soap and water once daily, and soaking the lesions in normal saline solution (two level teaspoonfuls of table salt to 1000 ml of water) for 20 minutes four times a day. If the patient is not allergic to sulfonamide drugs, sulfisoxazole may be administered orally

in a dose of 1000 mg four times a day until the lesions are healed (usually about two weeks). Sulfisoxazole may be administered without masking incubating syphilis or interfering with further laboratory diagnosis of concomitant syphilis. Patients with a bubo should be put to bed with an ice bag applied to the painful mass for the first two days, or until the discomfort is lessened. Thereafter, the recovery time may be shortened by the application of a hot water bottle to the inguinal region.

Occasionally, sulfonamide-resistant strains of chancroid are encountered. These usually respond to oral therapy with tetracycline hydrochloride 500 mg four times a day. *If the latter drug is administered, the patient must receive a course of tetracycline or penicillin therapy which also is adequate to cure syphilis.* (See p. V–115.) Before initiating a course of tetracycline or penicillin as therapy for chancroid, medical advice by radio should be obtained. This is necessary because the patient might be incubating syphilis or have a mixed infection of chancroid and syphilis.

LYMPHOGRANULOMA VENEREUM (LGV, Lymphopathia Venereum)

LGV is a systemic disease of venereal origin caused by a virus-like organism. The infectious agent is a *Bedsonia* organism (*Chlamydia*) closely related to that of psittacosis. The disease clinically is recognized more commonly in males. Subclinical or inapparent infections, or an asymptomatic carrier state have been described in females. After a variable incubation period averaging one to four weeks, the appearance of a small painless genital lesion has been described in fewer than 25 percent of cases. The lesion usually is an inconspicuous bump, blister, or shallow ulcer that heals within a few days and typically goes unnoticed by the patient. The earliest clinical signs are fever up to 103°F (39.4°C), chills, headache, malaise (not feeling well), coughing, and pain in the muscles and joints. Shortly after the onset of these symptoms, the patient becomes aware of a painful swelling in one or both groin areas. (See Fig. 5–8.) The swelling occurs in one groin in approximately two-thirds of cases.

Fig. 5–8. Lymphogranuloma venereum.

The inguinal bubo is common in males. Early in the course of regional node involvement, one can feel one or more enlarged discrete movable tender nodes. These eventually become matted together giving rise to an oval-shaped mass. Because of the involvement of lymph nodes both above and below the inguinal ligament, the mass may be compressed or divided by the inguinal ligament. This produces a characteristic grooved appearance with the long axis of the inflamed elliptical mass running parallel to the groin-fold. As the disease progresses, some of these matted nodes undergo softening. Because there are nodes in different stages of evolution, the mass becomes large and lobulated with alternating areas of softening and hardness. The overlying skin becomes swollen, sometimes bluish-red in color and fixed to the underlying mass. When pus forms and breakdown occurs, multiple fistulous tracts may open to the skin surface. Other symptoms less commonly found include lower abdominal pain and diarrhea due to involvement of nodes in the pelvis and around the rectum.

In brief, the patient with LGV appears as an acutely ill individual with no residual primary genital lesion, but with a painful, tender, firm, oval-shaped inguinal mass. The pain is exaggerated when walking due to the pressure by the inguinal ligament. Some relief may be obtained by walking bent over. Unless one suspects LGV, there is great temptation to diagnose a patient with these symptoms and signs as one suffering from a confined inguinal hernia. Such patients have been known to have been subjected to unnecessary surgery.

At sea, the diagnosis of LGV must rest on the appearance of the lesions and the other

symptoms. On reaching port a skin test (Frei test) and a blood test (complement fixation) should be made to lend support to any LGV diagnosis. When one makes a bedside diagnosis of LGV, appropriate treatment should be instituted.

Treatment

Bed rest is essential for a patient with LGV because continued activity will prolong the inflammatory process, discomfort, and period of recovery. An ice bag should be applied to the inguinal region for the first two or three days of treatment to help relieve local discomfort, tenderness, and warmth. Thereafter, local application of continuous heat from a hot water bottle will get rid of the inflammation. A bubo that can be moved back and forth should have any pus withdrawn through the intact skin using an 18 gauge needle and a 20 ml or larger syringe. *However, the withdrawal of pus should not be attempted except on medical advice by radio.* Systemic drug therapy should be started in the form of sulfisoxazole 1000 mg four times a day (every six hours).

If the elevated temperature returns to normal within three or four days after the initiation of systemic drug therapy, this will support the LGV diagnosis. Drug therapy should be continued until there is no evident decrease in the size of the involved lymph nodes. The duration of treatment in most cases requires 30 to 50 days. Often, small firm areas of scar tissue under the skin persist indefinitely where lymph node areas were involved.

An occasional patient may appear to respond poorly to sulfonamide drugs. If the patient still runs a fever, and his discomfort has not lessened or the bubo decreased in size after seven to ten days of such therapy, tetracycline hydrochloride should be substituted in doses of 500 mg orally four times a day. The tetracycline should be continued for one or two weeks, or longer according to medical advice received by radio. *Milk and antacids should be avoided when taking tetracycline because they inactivate the drug.* LGV patients who receive tetracycline should have a follow-up blood test (serological test) for syphilis every one or two months for at least six months. This will help to detect any incubating syphilis which may be masked temporarily by the antibiotic.

GRANULOMA INGUINALE (Donovanosis)

Granuloma inguinale is a chronic infectious bacterial disease of the skin, mucous membranes, and subcutaneous tissues. The causative organism is *Calymmatobacterium granulomatis.* The disease is most prevalent among dark-skinned races and usually involves the genital, inguinal, or perianal regions showing no tendency to heal spontaneously. However, it is the least contagious and least frequently encountered of the veneral disease discussed in this book.

The incubation period is reported to vary from several days to several months. The earliest lesion occurs painlessly on the external genitalia as a firm, flat-topped bump or a small, soft, pale red nodule under the skin. The surface becomes soft giving rise to a painless ulcer with a typical elevated soft bright pink velvety granular base that bleeds easily. As the disease progresses, the lesions become painful or itchy. The initial lesion enlarges in diameter and new lesions may grow together, as they develop. Other lesions are spread through secondary infection of adjacent or opposing skin surfaces. Small lesions have a button-like appearance, are sharply defined, and are covered by a red velvety surface of granulation tissue. As the lesions enlarge, they form an irregular snake-like outline. Their advancing borders have distinctive rolled edges with glazed, beefy red granulations piling onto the bordering surface of uninvolved skin. Although localized swellings or abscesses may develop in the inguinal regions, swollen lymph nodes are not characteristic of this disease. Secondary infection of the lesions with other bacteria is quite common. This may give rise to acute inflammation, local tissue destruction, and scarring. Laboratory diagnosis is possible by examining smears or biopsy specimens under the microscope.

Treatment

The use of saline solution (two level teaspoonfuls of table salt to 1000 ml of water) soaks or compresses three or four times a day will help in the local treatment of oozing or secondarily infected skin lesions of granuloma inguinale. For the infection, tetracycline hydrochloride 500 mg should be given by mouth four times a day for three to six weeks. Because re-

lapses have been reported after an apparent cure, the treatment should be continued for at least two weeks after the ulcers have healed. In longstanding cases, the disease may require as many as 12 weeks of therapy.

URETHRITIS (Non-specific)

Non-specific urethritis denotes a symptomatic urethritis (inflammation of the urethra) in which the causative organism or organisms cannot be determined. This urethritis is not due to gonorrhea, trichomonas, candida, or any other of the common agents. The disease is thought to be venereally transmitted. The incubation period usually is seven to 20 days. Symptoms are pain on urination and a scant watery discharge.

Treatment

For non-specific urethritis, tetracycline hydrochloride 500 mg should be given by mouth four times a day for one week. Patients with urethritis who receive tetracycline should have a follow-up test (serological test) for syphilis every one or two months for at least six months. This will help to detect any incubating syphilis which may be masked temporarily by the antibiotic.

HERPES SIMPLEX

Herpes simplex virus II is transmitted by skin to skin contact usually on the lips or genitals and can result in a blister outbreak for up to three weeks. The virus remains dormant and in 40 percent of the cases it is likely to recur four or five times a year on the average for a shorter period of time between seven to ten days. There is no cure at this time. Persons who have the virus can only transmit it to someone else when the blisters are active or during a time up to two days before the blisters break out. The pre-active stage can be recognized by an itching, warm feeling under the skin. During those four or five 10-day periods a year when a person is contagious, the person should abstain from sexual activity to prevent giving herpes to his partner. Herpes virus can be quickly killed by using soap and water shortly after contact is made. The emotional and psychological aspects of herpes have a major impact in the disease. Painful sores and other flu like symptoms of the first time herpes sufferer may be treated by a new medication, acyclovir. However, it seems most effective only for the first time infection.

PRECAUTIONS
for VD Patients and Medical Attendants

If there is a sore on the penis or a discharge from the urethra, a clean gauze dressing should be kept on the penis and the dressing changed frequently. The penis should be washed thoroughly with soap and water, then dried.

The hands should be washed thoroughly with soap and water after touching the penis and after handling gauze, bandages, or underwear that has come in contact with open sores. Extra care should be taken never to touch the eyes after handling material that may be contaminated with gonorrheal pus. Gonorrhea of the eyes, easily acquired and difficult to treat at sea, may cause permanent impairment of vision, even total blindness.

Gauze, cotton sponges, or other disposable material soiled with discharges of pus should be burned, or wrapped for other disposal, so they will not be touched or handled by others.

All items used by patients during the highly contagious second stage of syphilis, which is marked by fever, mouth sores, and skin rash, should be laundered, boiled, or chemically disinfected. This applies to underwear, bed linen, towels, eating utensils, bedpans, and urinals.

For Patients Ashore

The patient should protect himself from reinfection or cross-infection. Sex contacts should be avoided. The patient should guard others from his infection. He should not have sexual relations until his physician advises that it is safe to do so.

If the patient wants to marry, he should ask the doctor's advice on when the marriage may be lawful. In many States couples wishing to marry are required by law to have a blood test before they can get a marriage license, to make sure they are free from active venereal infection. This law is intended to prevent the spread of infection between spouses and from an infected mother to her unborn children.

The syphilis spirochete can pass into an unborn child from an infected mother. Unless

treated, the child may be born dead, live only a short time, or become sickly, deformed, or feebleminded. However, if a syphilitic woman is given proper treatment before the fifth month of her pregnancy, nine times out of ten, she will give birth to a normal noninfected child. That is why every expectant mother, whether there is reason to suspect infection or not, should have a blood test as soon as she knows she is pregnant.

Patients should protect others from chance infection. Although VD seldom is spread except by direct sex contact, a patient should take extra care to keep from spreading it indirectly. Until the doctor states a patient is no longer infectious, he should put forth extra effort to practice good personal hygiene, as follows:

- Use only his own toilet articles (as towels, washcloth).
- Avoid kissing.
- Do not swap bites of food, lend his pipe, or share cigarettes.
- Do not sleep with others.
- Do not soil toilet seats with his discharges.
- Wash his hands thoroughly with soap and water after using the toilet.
- Take hygienic precautions with soiled dressings (see p. VII–23).